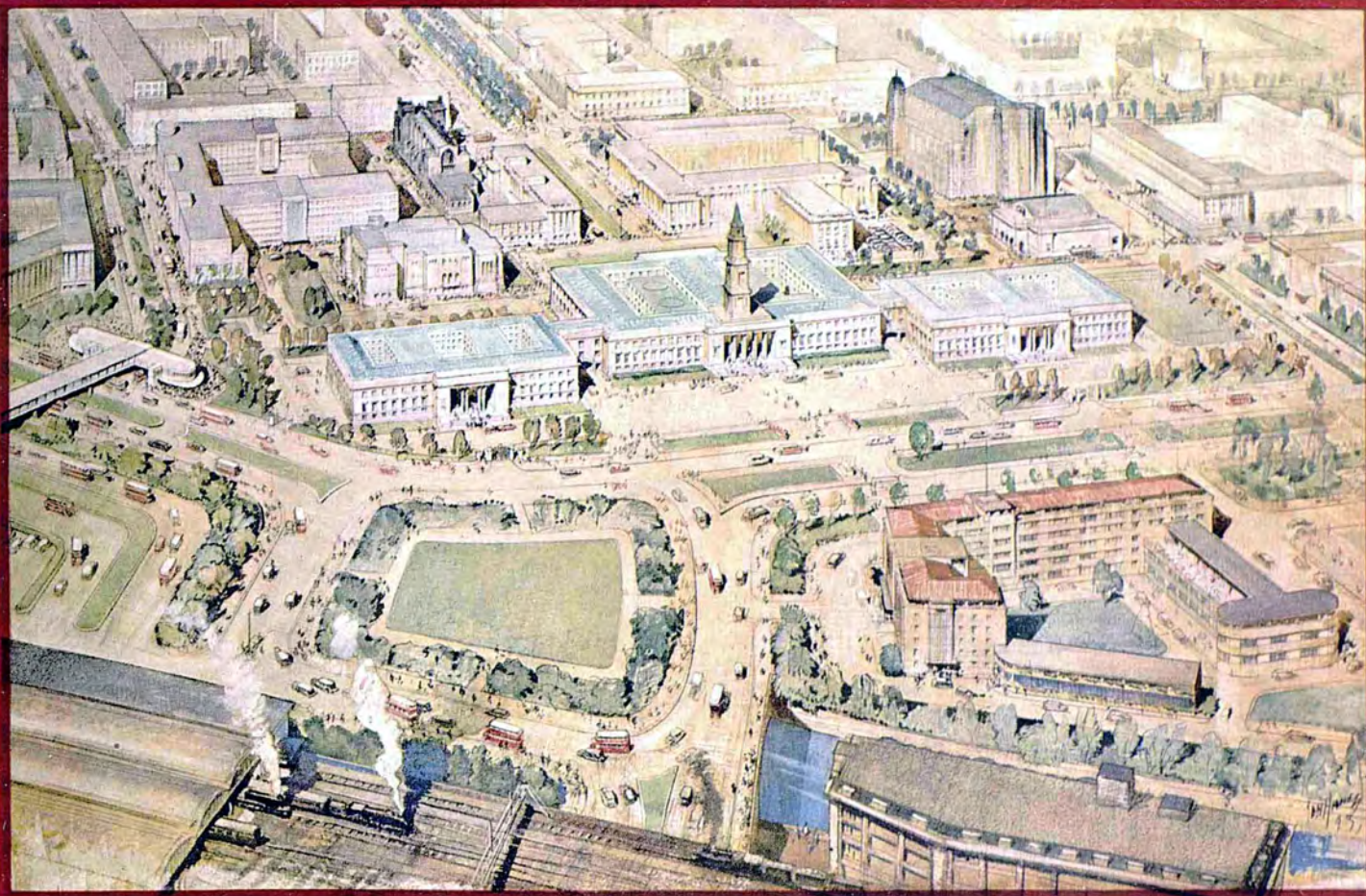
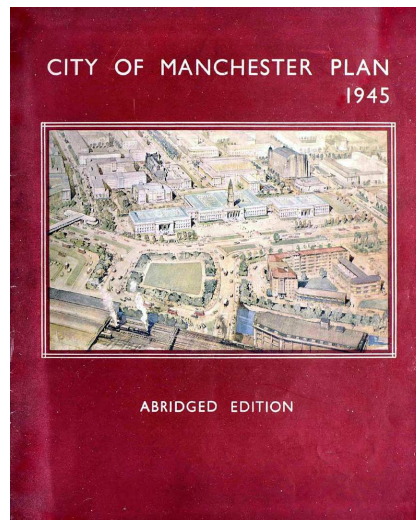


CITY OF MANCHESTER PLAN 1945



ABRIDGED EDITION



City of Manchester Plan 1945, abridged edition

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CITY OF MANCHESTER PLAN

ABRIDGED EDITION

By

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City Surveyor and Engineer

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1945

PREFACE

by the Lord Mayor of Manchester
ALDERMAN W. P. JACKSON, J.P.

WHEN THE POST-WAR PLANNING of Manchester was begun about two years ago the intention was to present the proposals to the Town Planning and Buildings Committee, and subsequently to the City Council, in a series of reports supported by plans. But as the City Surveyor proceeded with his task it became increasingly evident that the problems of planning and reconstruction in Manchester were so interrelated that it would be wiser and more informative to prepare and present the Plan as a whole. Accordingly, this course was adopted, and in this book Mr. Nicholas has developed his ideas for the future of Manchester.

To-day our country is at the beginning of the great transition from war to peace, and all thinking people will wish to inquire about the sort of world to be built for posterity. The extent to which the Civic Authorities will be able to remodel Manchester as a fairer city with greatly improved living and working conditions will depend ultimately upon the interest, determination and wishes of the citizens, to whom I commend this book for careful study.

Lord Mayor's Office, Manchester.
May, 1945.

W. P. JACKSON,
Lord Mayor.

by the Chairman of the Town Planning and Buildings Committee
COUNCILLOR OTTIWELL LODGE

IN AUGUST, 1941, Lord Reith addressed the Manchester and District Regional Planning Committee, of which Manchester is a constituent authority, and advised the preparation of a provisional plan for redevelopment. He suggested that those responsible should not consider themselves bound by existing legislation, but that they should plan boldly and comprehensively. This was, indeed, a challenge, and an inducement to tackle the multifarious problems which beset us on all sides according to modern conceptions of planning.

Mr. Nicholas has approached each problem with no preconceived ideas and no prejudices. He has examined with great thoroughness all available information, and where this was not sufficient he has made his own investigations. Yet it has been ever present in his mind that the health and happiness of our citizens must be his ultimate concern. Here is no attempt to revolutionise the face of the city, but rather to shape it into a satisfactory pattern—largely conforming to the present layout, but giving us the opportunity we need to improve its efficiency and its standing as a regional centre.

Any constructive comment will receive the most careful attention from the Town Planning and Buildings Committee when they proceed to a detailed consideration of the proposals, to which, by the very nature of the book, they are not committed in any way at this stage.

Even to the casual reader it will be manifest that a tremendous amount of work has gone into the preparation of this Plan, not only in the sifting of all available information about this great city and the manner in which Manchester came to be what it is to-day, but also in original research into matters which have perhaps not received the prominence which their importance demands in earlier planning proposals.

The untiring enthusiasm and energy of the whole of Mr. Nicholas's planning team has been most marked throughout this period of unspectacular but unavoidable hard work. I am glad to have this opportunity of paying a public tribute to the small body of men and women, ably led by Mr. Nicholas, who have made the publication of this book possible.

May, 1945.

OTTIWELL LODGE.



1

BLITZ 1940

1. Piccadilly in flames on the night of December 23rd.
2. The corner of St. Mary's Gate and Deansgate.
3. The Free Trade Hall, once the home of the Hallé Orchestra.



2

Here, in Piccadilly, St. Mary's Gate, Peter Street—in many places throughout the city—there is the opportunity for rebuilding; for designing structures that will be worthy of our city.

When we build again, let us take full advantage of this opportunity.



3



1

PROBLEMS OF REDEVELOPMENT

The long-term plan will provide for the "thinning-out", zoning and re-building of the densely built inner areas.



2

1. Congested, obsolescent dwellings hemmed in by industrial and other buildings. The low standard of living conditions typified here must be dealt with at an early stage of the redevelopment programme.
2. The corner "pub" and small shops (which are usually converted houses) are invariably cramped, inconvenient and unsightly. Neighbourhood centres with their pleasant, spacious atmosphere will provide a marked contrast with shopping streets of this nature.
3. Industrial buildings and warehouses are inextricably mixed up with rows of small houses, and are serious obstacles in the path of large-scale redevelopment. The heavy traffic, noise and atmospheric pollution commonly associated with these buildings render them highly undesirable neighbours for the homes of the people.



3

IT WAS THE BLITZ that awakened public interest in planning. But it was not the blitz that made planning necessary.

A great city is always in process of gradual reconstruction. Old buildings are continually being pulled down and replaced, or their sites used for other purposes. Most of Manchester has been built or rebuilt in the last half-century; but because the process went on unplanned, the city we live in is not a great improvement on the Manchester of 50 years ago. Individual buildings have changed, but congestion, dirt and ugliness remain. With or without a plan, most of Manchester will again be gradually rebuilt in the course of the next half-century. If at every stage this process of reconstruction is made to conform with a master pattern of the kind suggested in this book, the Manchester of 50 years hence will be a city transformed; if not, it will still be as ugly, dirty and congested as it is to-day. It is for you, the citizens of Manchester, to make the choice.

The need for planning, then, has always existed and always will exist. Here in Manchester it is especially urgent now—not because of the blitz, but because whole districts of our city are so decrepit that they must in any event be redeveloped within the next few years.

THE PURPOSE OF PLANNING

The main object of the Plan outlined in these pages is to enable every inhabitant of this city to enjoy real health of body and health of mind. Fresh air and sunshine are essential to the building of a sound physique, especially in the formative years of childhood. We must also have good housing; but it would be futile to remedy shortcomings in the home if conditions in the office, shop or factory, where a major part of the working day is spent, were to remain unsatisfactory. In addition we need more opportunities for recreation, for cultural pursuits and for the enjoyment of civic amenities. Last—though by no means least—we must ease the strain of daily travelling to and fro.

It would be a comparatively simple matter to produce a grandiose scheme for reconstruction which would be plausible enough and exceedingly attractive on paper, but which, lacking a factual basis, would prove either completely unworkable or disastrously inept in practice. The harder way—to base our Plan on principles derived from detailed physical and demographic research—has been preferred because it is the only honest approach.

In the first place, any scheme for the reconstruction of a largely built-up area must take account of the existing pattern of development. In the course of centuries the original framework of our city may be completely remodelled, but over a period of 50 years or so the shape of things present must to some extent persist. The preparation of a redevelopment scheme must therefore be preceded by a systematic study of our city's present layout,

of its traffic and communications, of the age, use, height and condition of existing buildings, and of the economic, geographical and other factors which have made it what it is.

Again, in order to ensure that our proposals may be in full accord with real human needs, we must first analyse the composition of our present population and its family units. We must examine past and present shifts and trends, seek out their causes, and try to forecast their future influence on the size and structure of our population, on the character and distribution of our workplaces, on our means of moving about, and on our domestic and social ways of living.

The life and well-being of every inhabitant of this city—that is, of some 700,000 people—will be directly affected by the scheme here outlined. To a lesser degree it also concerns well over 2,000,000 people living in nearby areas which have close ties with Manchester. Some of the problems with which it deals are common to nearly all the neighbouring communities which make up the Manchester "conurbation" and its surrounding countryside; they could not effectively be solved by each in isolation from the rest. Accordingly this Plan has been designed to fit into a broad regional scheme covering a total area of more than 1,000 square miles (see Diagram 1 overleaf).

Manchester is a constituent member of the Manchester and District Regional Planning Committee, which in turn is represented on the South Lancashire and North Cheshire Advisory Planning Committee. This, the first body of its kind in the country, has been in existence in its present form for some 20 years. It co-ordinates the work of its constituent district committees, circulating the results of their research and helping them to deal with questions that are common to all, or which arise in boundary areas. The Town Clerk and City Surveyor of Manchester are respectively the Honorary Clerk and Honorary Surveyor to both the Regional Committee and the Advisory Committee, and the staffs of both these bodies use the Manchester Town Hall as their headquarters.

THE PLAN IN OUTLINE

In many respects the Manchester citizen of 1650 was in a better position to enjoy a healthy life than the present-day inhabitant of Ancoats, Beswick, or Hulme. If the quality of his house was poor, at least he had a fairly large strip of garden and the open country was only a few minutes' walk away. To-day about 60 per cent of Manchester's houses are built at densities in excess of 24 to the acre. Most of these 120,000 houses are old and must in any event be rebuilt in the comparatively near future. Over 60,000 are considered by the Medical Officer of Health to be unfit for human habitation. As far as the inner belt is concerned, therefore, the question is not whether complete redevelopment is necessary, but in what



Diagram 1

A COMPARISON OF THE LOCAL, REGIONAL AND ADVISORY PLANNING AREAS

form and at what standards of density it should take place. Is Manchester prepared once again to give the country a bold lead by adopting standards of reconstruction that will secure to every citizen the enjoyment of fresh air, of a reasonable ration of daylight, and of some relief from the barren bleakness of bricks and mortar?

HOUSES AND FLATS

There are some who believe that if redevelopment takes the form of large blocks of flats, with trees, lawns and playgrounds in between, it is possible to realise such standards without displacing a large proportion of the people now living in the congested areas. In support of their contention they point to the success of several Continental housing schemes of this type. There is an element of truth in the argument, but on mature consideration it will be found to over-simplify a vastly complicated problem.

In the first place the Continental analogy is misleading. In the countries where workers' flats have been most generally popular, housing standards are markedly lower than in Britain, the climate encourages a gregarious outdoor life, and public transport is not sufficiently developed to permit the employees of concentrated industries to live in open surroundings. It would be a profound sociological mistake to force upon the British public, in defiance of its own widely expressed preference for separate houses with private gardens, a way of life that is fundamentally out of keeping with its traditions, instincts and opportunities.

Secondly, the advocates of large-scale flat-building greatly over-estimate the proportion of people now living in the congested areas who might thereby be decently rehoused on the site. Blocks of flats to accommodate the majority of the residents in Manchester's inner districts would have to be so close together in relation to their height and capacity that the lower rooms would get little daylight, communal lawns between them would soon be trampled into bare mud, and playground noises would become intolerable. In other words, it is impossible to get rid of the effects of congested development simply by turning it on edge. Moreover, if adequate space is reserved in the redevelopment areas for necessary provisions other than house-room (e.g., shops, playing-fields, public buildings and other communal facilities), the advantage to be gained in terms of the proportion of their inhabitants who can be rehoused on the site is comparatively small.

In short, the reconstruction of the most congested areas in accordance with decent living standards must in any event entail an overspill amounting to well over half of their present population. The rehousing of these people is a physical and psychological problem of the first magnitude. There will be room in Wythenshawe to accommodate about 36,000 of them, but about three times that number will have to be found homes outside the city boundaries in the near future. A parallel dispersal of workplaces from the inner city area to the new settlements must be arranged as an integral part of the redevelopment programme.

Since the building of flats for people who want houses would be ineffective as a means of avoiding this overspill

problem, or even of materially reducing its scale and urgency, dwellings of each type and size should be mingled in proportion to the family units to whose needs they are most appropriate. It is on this basis that the housing proposals in the Plan have been prepared.

In deciding where the various types of dwelling should be put, the aim has been to ensure, first, that every dwelling may have convenient access to communal facilities; second, that residential and industrial areas may be distinctly (but not too widely) separated; and third, that the layout of the residential areas may be such as will foster a sense of community.

THE CIVIC STRUCTURE

With these ends in view dwellings have been grouped in neighbourhood units, bounded by main roads, railways, or other physical barriers, and each containing enough churches, shops, playing-fields, primary schools and public houses for about 10,000 people, as well as a community centre, branch library and health sub-centre. Most of these amenities should be concentrated in a neighbourhood centre designed to serve as a focus for local social activities.

The neighbourhoods in turn have been grouped into districts, whose centres should be equipped with district shops, halls, cinemas, art galleries and such other attractions as cannot economically be provided for communities of less than about 50,000 people.

The city centre must serve the wider needs not only of these residential districts but also of the outlying towns in the large region which looks to Manchester as its economic and cultural capital. In order that it may discharge this function in a worthy and efficient manner it will have to be extensively rearranged over a long period.

Improved communications plainly constitute the key to the replanning of the central area. Both long-distance and suburban railway lines need to be linked together. The present passenger stations are obsolete and ill-sited; their approaches are inconvenient and confined. The goods stations should be removed entirely from the central area. The whole system should be modernised and integrated with a new and scientifically designed highway network, capable of giving safe, smooth and speedy passage to a volume of motor traffic far in excess of that which before the war had already begun to choke our present streets. As an essential part of the transport scheme, new bus terminals and car parks will have to be provided, and sufficient land must be reserved at Ringway to give the Manchester region an airport big enough to serve as a terminal for transcontinental services.

Manchester is first and foremost the core and pivot of one of the most highly industrialised regions in the world. An overriding purpose of any plan for Manchester, therefore, must be by all possible means to promote, and to avoid impairing, the full and prosperous employment of the population engaged in the manufacturing and commercial activities to which the city and its environs owe their wealth. Planning can help substantially towards the

achievement of that purpose, especially by offering land and facilities in the right places for the introduction of those new enterprises which are so urgently required to balance the city's industrial structure.

At present Manchester is plentifully sprinkled with areas in which obsolete factories and slum houses are inextricably intermingled, but has few sites to offer for new industries. The Plan proposes that selected zones, amounting in the aggregate to a larger acreage than is now in use for industrial purposes and conveniently situated in relation to road, rail and canal transport, should be reserved for industrial development. To these zones, as well as to new industrial estates adjoining the new residential communities, the firms now established in areas which have been zoned as residential neighbourhoods should be induced to migrate as their present premises approach the end of their efficient life.

Of the other principal features of the Plan—such as the proposals to remedy shortcomings in the amount and distribution of public open space, to abate (and ultimately to abolish) the pollution of the city's atmosphere by smoke and fumes, to expand its health and education services and to revitalise its cultural life—of these nothing more need at this stage be said, since they do not involve any substantial modification of the general framework as determined by the considerations outlined above. They do nevertheless constitute essential parts of the Plan, for without them its objects cannot be fully achieved.

WAYS AND MEANS

The actual work of reconstruction will have to be done in stages, so as to avoid disrupting the life of the city and the social structure of the areas concerned. To show how this can be arranged, detailed drawings illustrating the progressive redevelopment of a very congested district are included in this book. The exact order and duration of the stages in which particular sections of the city will be redeveloped must depend on a number of unpredictable factors, but broadly speaking it is estimated that the proposed residential redevelopment should be accomplished before 1975, though the rest of the scheme is unlikely to approach completion in less than 50 years.

It is, of course, assumed that adequate powers and financial facilities will be provided by the State, for otherwise no satisfactory scheme could possibly be put into effect. It is hoped that the publication of these proposals, by drawing attention to the character of the problems still requiring legislative action, will assist the Government in the formulation of a national planning policy.

To forecast the total expenditure involved in carrying out the Plan would be virtually impossible; nor would such an estimate serve any useful purpose. It would be no less difficult—and equally meaningless—to assess in monetary terms what the community would gain from good planning in the way of enhanced municipal income, time saved, better health and higher productivity. We must bear in mind the cardinal fact that a major proportion of the

projected work will in any event have to be done, with or without a plan, during the next 50 years. The questions that matter are whether planned redevelopment will cost more or less than unplanned redevelopment, and whether it will bring in greater or smaller returns to the community. The answers to both questions strongly reinforce the case for comprehensive planning.

Nevertheless the financial aspect must be carefully considered at every stage, for there is a limit to the amount which any generation is prepared to lay out for benefits which, however great, will largely accrue to succeeding generations. Under a flexible plan, however, expensive redevelopment can be slowed down in times of full employment and financial stringency and accelerated when private capital investment falls off.

CONCLUSION

Within the general framework outlined above there will be plenty of scope for taste and imaginative vision to play their part in fashioning the detailed form and structure of the Plan. Yet even here we do not start with a clean slate. The planner must take into account that indefinable but unmistakable spirit which is inherent in any old-established community. The character of a city is created not merely by its particular topography and climate, but also by the temper of its citizens, by their traditions, and by the ways of life they have evolved over a period of centuries. Manchester has an air of sturdy independence, of common sense and sociability, that is peculiarly its own. Beneath its somewhat grim and forbidding exterior glows a rich local colour. Admittedly not all our traditions have an equal claim to be embodied in the Plan. Some, indeed, are wholly bad, and these must be ruthlessly eradicated. But the best of them should be allowed to play their part in shaping the city of to-morrow.

A monumental plan in the grand manner, with showy vistas and processional ways, would be totally out of keeping with the essentially practical character of Manchester. That, however, is no reason why we should perpetuate the spirit of sheer materialism and indifference to beauty which has been mainly responsible for the undistinguished appearance of the present city centre. On the contrary, the ultimate achievement of the city beautiful should be our constant purpose. The true ideal must surely be a combination of beauty and utility.

How nearly the present proposals approach that ideal is for you, the reader, to judge. It cannot be too strongly emphasised that they are only tentative proposals. It is an avowed purpose of their publication to stimulate comment and criticism, and due attention will be paid to the views they evoke when the city council comes to adopt an official scheme. It is therefore of the first importance that you, the citizens of Manchester, should give careful thought to the problems involved and to the solutions here suggested. Reflect upon them; discuss them with your friends; and then let your voices be heard, whether in praise of what you like or in condemnation of what you think unworthy of your city's future.

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A full survey has been made of all public open spaces, indicating their present use, and the extent to which playing-field areas could be enlarged if required. It also records undeveloped land, classified according to its suitability for building; private open spaces, which should be retained; and permanent allotments. This has been found invaluable as a guide to the siting and layout of future public open spaces.

The use, age, height and condition of every building in the city have also been recorded. This civic survey indicates where demolition is likely to be costly and difficult, and which property is now obsolete and ripe for demolition. From this point of view it has facilitated the planning of the routes of new roads through developed areas, especially within and near the city centre.

On the same survey maps the positions and sizes of gas, water and electricity mains, sewers and any special services, such as hydraulic power supply, have also been recorded. This makes it easier to estimate the costs which would arise if roads were built over or diverted.

Although the information recorded on these two principal series of maps is complete in itself, it was found desirable, for the particular study of certain specific problems, to recast some of it in a manner appropriate to each of these problems as they came under review. For example, a set of 46 Ordnance sheets records the particular purposes for which buildings are now used. It is thus possible to appreciate at a glance the predominant use of buildings in any area.

Further maps have been prepared indicating a combination of age, height and external condition, and hence the likely comparative durability, or "life", of buildings. It is in relation to the possible order of redevelopment over large areas that these have been most valuable.

For the purposes of future zoning it has been found necessary to consider certain types of building separately. Thus, one set of maps records the state of industrial buildings, and another shows the existing situation, quality and capacity of blocks of warehouses in relation to the commercial buildings of the city centre and to neighbouring (predominantly industrial) areas. All banks, offices and commercial buildings in the central city area have likewise been recorded on maps to be used in considering the interrelationship of such buildings. A map showing shops as distinct from other premises completes the series covering the central area of the city.

In addition, a separate survey of shops has been made throughout the city, recording the trade or business of

each shop together with its length of street frontage and the quality of its external fabric. This information has facilitated the assessment of future shopping requirements in particular districts of the city, especially in connection with neighbourhood-unit planning.

THE SOCIAL SURVEY

In some respects the human factor is neither stable nor susceptible of accurate measurement, but many of the basic human needs remain constant over long periods of time and do not appreciably differ from place to place. Consequently, in respect of all these fundamental requirements, a large body of reliable information is already available, built up from countless researches conducted at various times and places in conditions more favourable than those which now obtain.

A small-scale social survey was nevertheless considered necessary, partly to supplement and check the accumulated store of sociological knowledge where local variations in taste seemed likely, and partly to obtain answers to specific questions bearing on the reconstruction programme. It will be appreciated that although the attitudes of mind revealed by questioning a sample of the population are liable to undergo drastic alteration when the projects concerned are understood and accomplished, these attitudes must none the less influence the timing, the order and the complexity of the stages by which such projects can be most smoothly and satisfactorily carried out.

For example, a special analysis has been made of the preference as between houses and flats among those householders who are at present living in flats. As might be expected, it was found that the majority of people with young families wish to move into dwelling-houses, but 80 per cent of the old people with no children express a preference for flats. On the other hand only 3.8 per cent of the people living in congested cottages wish to move to flats; the great majority want gardens of their own.

POPULATION

In the first ten years of this century the population of Manchester rose by over 30 per cent; in the next 20 years the rise continued, but at an average rate of less than four per cent in each decade; between 1931 and 1941 it slumped below the 1911 figure. What will be the trend in the course of the next 50 years? Clearly, the answer to this question is fundamental to nearly every aspect of our Plan, for it governs the scale of the provisions required to meet future needs. It would be futile to plan the Manchester of to-morrow regardless of whether its population, by the time the proposals were carried out, was going to be half as big or twice as big as that of the Manchester of to-day.

The number of people for whom Manchester will have

achievement of that purpose, especially by offering land and facilities in the right places for the introduction of those new enterprises which are so urgently required to balance the city's industrial structure.

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On the same survey maps the positions and sizes of gas, water and electricity mains, sewers and any special services, such as hydraulic power supply, have also been recorded. This makes it easier to estimate the costs which would arise if roads were built over or diverted.

Although the information recorded on these two principal series of maps is complete in itself, it was found desirable, for the particular study of certain specific problems, to recast some of it in a manner appropriate to each of these problems as they came under review. For example, a set of 46 Ordnance sheets records the particular purposes for which buildings are now used. It is thus possible to appreciate at a glance the predominant use of buildings in any area.

Further maps have been prepared indicating a combination of age, height and external condition, and hence the likely comparative durability, or "life", of buildings. It is in relation to the possible order of redevelopment over large areas that these have been most valuable.

For the purposes of future zoning it has been found necessary to consider certain types of building separately. Thus, one set of maps records the state of industrial buildings, and another shows the existing situation, quality and capacity of blocks of warehouses in relation to the commercial buildings of the city centre and to neighbouring (predominantly industrial) areas. All banks, offices and commercial buildings in the central city area have likewise been recorded on maps to be used in considering the interrelationship of such buildings. A map showing shops as distinct from other premises completes the series covering the central area of the city.

In addition, a separate survey of shops has been made throughout the city, recording the trade or business of

each shop together with its length of street frontage and the quality of its external fabric. This information has facilitated the assessment of future shopping requirements in particular districts of the city, especially in connection with neighbourhood-unit planning.

THE SOCIAL SURVEY

In some respects the human factor is neither stable nor susceptible of accurate measurement, but many of the basic human needs remain constant over long periods of time and do not appreciably differ from place to place. Consequently, in respect of all these fundamental requirements, a large body of reliable information is already available, built up from countless researches conducted at various times and places in conditions more favourable than those which now obtain.

A small-scale social survey was nevertheless considered necessary, partly to supplement and check the accumulated store of sociological knowledge where local variations in taste seemed likely, and partly to obtain answers to specific questions bearing on the reconstruction programme. It will be appreciated that although the attitudes of mind revealed by questioning a sample of the population are liable to undergo drastic alteration when the projects concerned are understood and accomplished, these attitudes must none the less influence the timing, the order and the complexity of the stages by which such projects can be most smoothly and satisfactorily carried out.

For example, a special analysis has been made of the preference as between houses and flats among those householders who are at present living in flats. As might be expected, it was found that the majority of people with young families wish to move into dwelling-houses, but 80 per cent of the old people with no children express a preference for flats. On the other hand only 3.8 per cent of the people living in congested cottages wish to move to flats; the great majority want gardens of their own.

POPULATION

In the first ten years of this century the population of Manchester rose by over 30 per cent; in the next 20 years the rise continued, but at an average rate of less than four per cent in each decade; between 1931 and 1941 it slumped below the 1911 figure. What will be the trend in the course of the next 50 years? Clearly, the answer to this question is fundamental to nearly every aspect of our Plan, for it governs the scale of the provisions required to meet future needs. It would be futile to plan the Manchester of to-morrow regardless of whether its population, by the time the proposals were carried out, was going to be half as big or twice as big as that of the Manchester of to-day.

The number of people for whom Manchester will have

to find accommodation at any given period in the future will depend on the birth rate, the death rate and the net effect of spontaneous migration into or out of the city.

BIRTH AND DEATH RATES

The number of children born each year in Manchester per 1,000 of the total population declined from 28.85 in 1901 to 13.98 in 1941. Since the ratio of male to female children born during this period was fairly steady, the number of Manchester-born women of child-bearing age (15 to 44) is now getting smaller every year. This decline must inevitably continue for some time, for nothing can now be done to increase the number of girls born a generation ago. In consequence, even if the fertility rate remained constant, the population would continue to fall; but in fact the fertility rate is also declining. Not until the birth rate per 100 women of child-bearing age rises 50 per cent above the anticipated level will it suffice to stabilise the population at about the present figure. The effect of certain hypothetical birth rates on future population levels is illustrated on Diagram 2.

Past records of mortality in the various age-groups also show fairly regular trends, and these have likewise been projected into the future. In 1901, 19.8 per cent of the children born in Manchester died before reaching the age of one year. By 1943 the rate had been reduced from that shocking level to 6.1, but it is still far too high. (In nearby Sale the 1938 figure was as low as 3.3.) The Medical Officer of Health considers that, given improved living conditions and health services, Manchester's infant mortality rate might be brought down to about three deaths per 100 live births before the end of this century. This forecast has been adopted for the purpose of our calculations.

It has been found that while mortality among young and middle-aged people still tends to diminish year by year, the downward trend of the rates for the higher age-groups has already begun to level off; in two five-year groups, indeed, a distinct upturn had become apparent even before the war came to intensify the growing strain of modern urban life. A similar levelling-off towards the end of this century has accordingly been assumed in projecting the trends for all the older age-groups.

MIGRATION

No records have at any time been kept of population movements into and out of the city, but a fair estimate of the net balance of emigration or immigration in each age-group between census years can be worked out from the census figures and the birth and mortality records for the intervening years. Calculations made from these data show that Manchester has been consistently losing population by spontaneous movement since the beginning of this century. During the period 1901 to 1911 emigrants exceeded immigrants by about 17,000. For the following decade the figure was only about 12,500, but it rose again to about 24,200 during the period 1921 to 1931 and to 72,000 between 1931 and 1941. Research into the causes

of this exodus suggests that emigration and immigration will approximately cancel out between now and 1950. Thereafter, it has been assumed, the percentage rate of net emigration will return to the level of the decade 1921 to 1931. This must be regarded as a conservative forecast.

By applying our birth-rate and mortality forecasts, and adjusting the totals in conformity with the migration allowance, the future population of Manchester has been estimated up to the year 1991.

Table 1

Year	1901	1911	1921	1931	1941
Population ..	543,872	714,333	744,000	766,378	704,550
Year	1951	1961	1971	1981	1991
Population ..	702,300	659,300	606,300	546,650	483,350

These figures show that if current trends persist the normal population of Manchester is more than likely to decline by nearly 50,000 in the next 15 years, and by more than 50,000 in the following decade; that these figures may well be swollen by spontaneous emigration on a larger scale than has been assumed; and that the decline will probably continue thereafter at a still faster rate unless national and local policy meanwhile succeeds in bringing about a really substantial rise in the birth rate per 100 women of child-bearing age.

THE FAMILY UNIT

The population estimates given above afford an adequate starting-point for calculating the amount of space required for most planning purposes. But for the cardinal purpose of assessing the space required for residential accommodation they take us only part of the way. In order to decide how many dwellings must be provided we must ascertain not only the number of people who will be living in the city, but also the number of households of which the total population will at any given time be composed.

For this purpose it is no use simply dividing the appropriate population figure by the number of people who could be accommodated in a typical post-war house, or even by the number of people in the average present-day family unit. A declining birth rate means that families will continue to get smaller; declining death rates will continue to increase the proportion of family units consisting of old people living alone or in couples, while the modern tendency among young unmarried people to prefer an independent way of living, apart from their parents, must be expected to persist and may grow stronger. All these factors will continue to reduce the size of the average family unit, to increase the number of dwellings required to house a given population, and to alter the relative demand for different types of dwelling.

The number of Manchester family units of each size, from one person to 11 and over, has been obtained from the national census figures for the years 1911, 1921 and 1931, and from the war-time billeting survey for the year 1944. (This takes account of members of each family

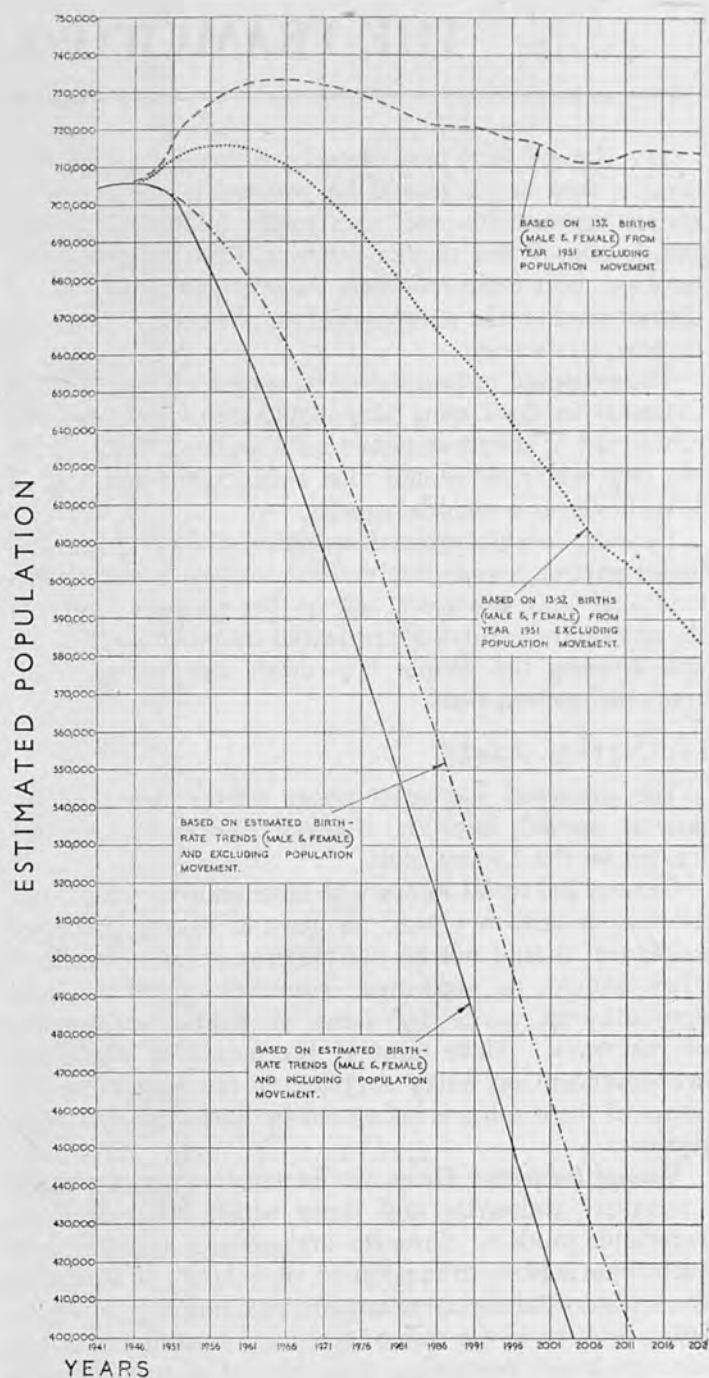


Diagram 2

BIRTH RATES AND POPULATION LEVELS

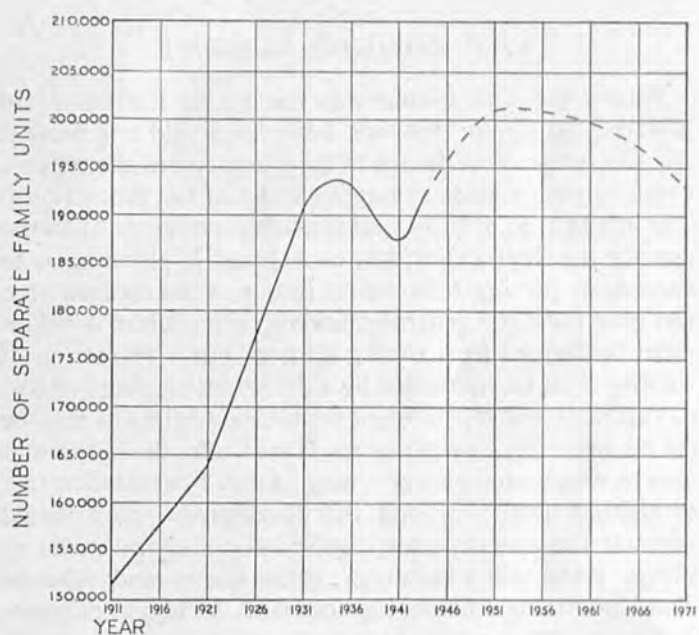
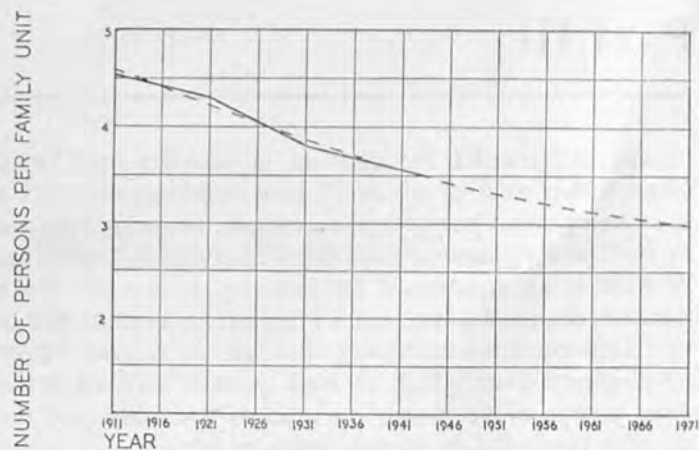


Diagram 3

FAMILY UNITS: SIZES AND NUMBERS

group absent on war work or in the Services.) The changes in the number of units of each size have been plotted on graphs, and the trends thus indicated have been projected into the future. From these it has been possible to estimate the average number of persons per family, and hence the total number of family units, at various periods in the future (see Table 2 below and Diagram 3 above).

Table 2

	Census returns			Billeting survey	Estimated					
	1911	1921	1931	1944	1946	1951	1956	1961	1966	1971
Average number of persons per family unit ..	4.54	4.31	3.81	3.50	3.42	3.32	3.22	3.13*	3.03	2.98
Total number of family units	151,612	163,939	190,928	192,938	195,662	200,905	200,877	199,756	197,204	192,785

*In estimating future requirements 3.25 persons per dwelling have been assumed since the post-war demand for dwelling-houses will have priority over the needs of single-person households during the early stages of the redevelopment programme.

"ZONING" MEANS the division of the city into broad areas within each of which all new buildings must serve the same general purpose: for example, factories may not be built in a residential zone; conversely, houses may not be built in an area zoned for industry. It is a protective measure designed to prevent, in new areas, a recurrence of that haphazard intermingling of industrial and residential development from which we have so sadly suffered in the past, and to make possible a gradual unravelling of the existing confusion in already built-up areas.

THE ZONING SCHEME

Before the war zoning was the major instrument of planning policy. In practice, however, it did not prevent the admixture of buildings of an intermediate character—often on such a scale as largely to defeat the protection it was intended to afford—and it made no attempt to secure orderly development within each zone. If planning is to succeed in turning Manchester into a well-arranged city, not only must the general character of its future development be defined by a zoning scheme, but each section of the city must be controlled by a development plan (subject to variation and replacement from time to time as may be found necessary) detailing its layout and the particular uses to which each part of it may be put. For instance, in a residential neighbourhood the development plan would indicate the specific sites reserved for such purposes as shops, community buildings, open spaces and schools. Thus the zoning scheme, together with the layout of major highways, forms only the broad pattern into which the detailed plans for each zone must be fitted.

This pattern must be governed to some extent by physical and topographical features. Deep valleys, hills, rivers, canals and railways largely determine the form of development and the location of commercial, residential and industrial buildings. Moreover, the economic reasons for the present distribution of different kinds of building, together with the future requirements of business, trade and transport, must be thoroughly understood and taken fully into account.

RESIDENTIAL ZONES

The areas which it is proposed to zone for residential purposes are shown in red on the Zoning Map opposite this page. Within each of these residential zones lies not only the land to be used for houses and flats, but also that required for the provision of local public open spaces, local and neighbourhood shops, primary schools, churches and public and community buildings. Two special low-density areas, one in Rusholme and one in Didsbury, are hatched in red. Here private enterprise would have an opportunity to build high-rental residential property with the maximum protection for its investment.

The Zoning Map also shows the location of district centres, into which should be grouped major suburban shops, amusements, and such public buildings as main health centres and district libraries. District sub-centres have also been indicated where the attenuated shape of the district would make it impossible for one centre to provide an adequate service.

The proposed re-location of passenger railway stations indicated on the Zoning Map would greatly facilitate the movement of suburban commercial workers to and from the city centre. It should also enhance the position of Manchester as a regional capital.

Further, note the broad distribution of open spaces and major parkways and observe how wedges of open parkland lead from the green belt on the periphery towards the city centre, insulating residential from industrial zones and dividing the former into more compact and self-contained communities.

INDUSTRIAL ZONES

The proposed industrial zones are of four kinds—general, special, light and domestic. These also are delimited on the Zoning Map.

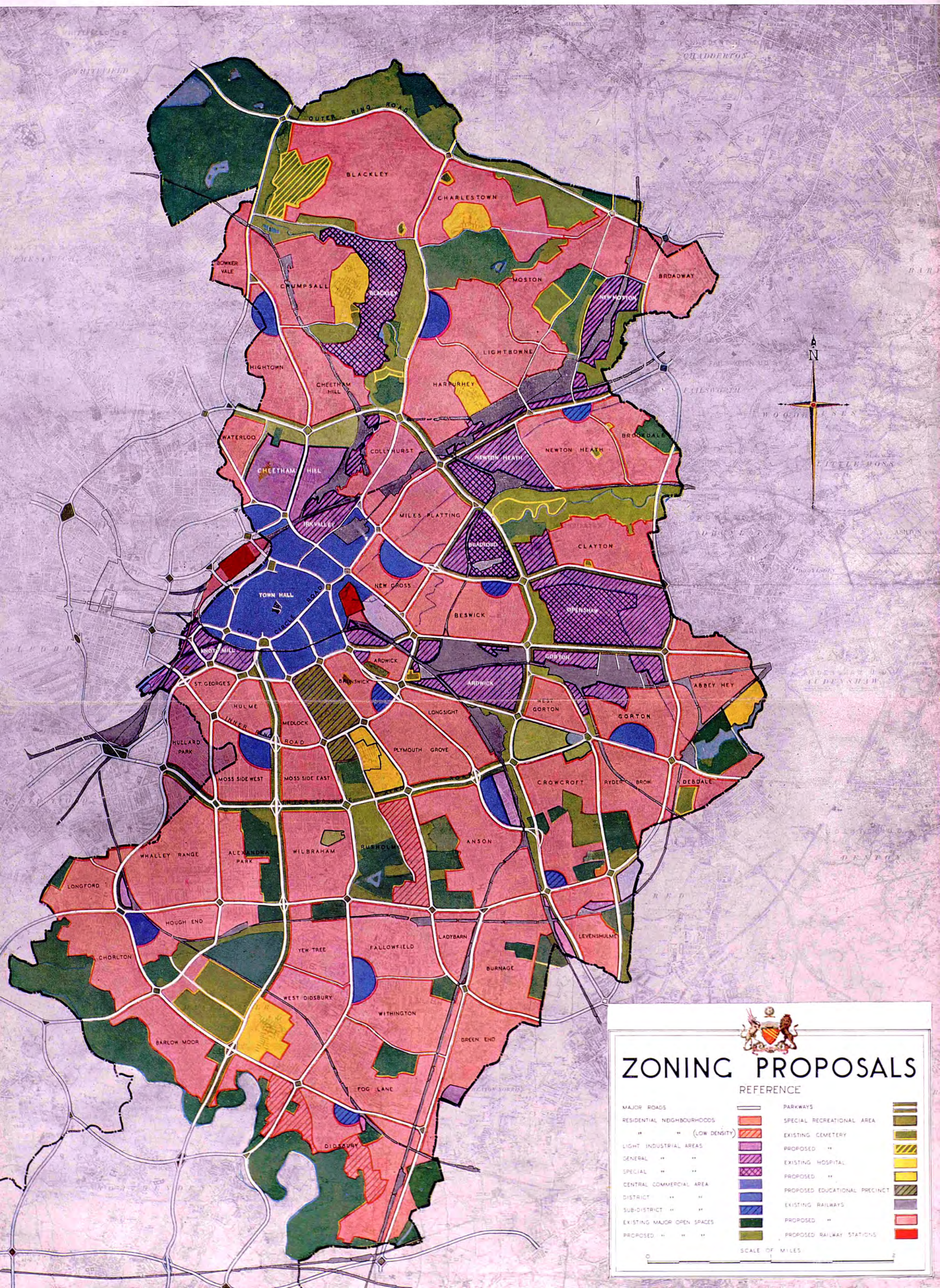
General Industrial Zones will accommodate heavy and medium industries which, on account of the processes employed, should not be put close to houses or offices. They should be separated, wherever possible, from non-industrial zones by areas of public open space or parkways. Since most of the industries concerned are dependent on bulky supplies of raw materials, the siting of these zones is influenced by dock, rail and road facilities.

Special Industrial Zones are intended to accommodate "noxious" industries and those which consume their perishable products. Since the atmosphere in and around such zones is likely to be polluted, they should be separated from residential and commercial zones not only by open-space belts, as in the case of general industrial zones, but also by areas containing industries of a less offensive character.

Light Industrial Zones should be reserved for the cleaner industries which give rise to no complaint, on the grounds of noise, smoke pollution or smell, if they are sited close to residential or commercial zones. The present industrial development at Wythenshawe affords a good example.

Domestic Industrial Zones should be provided as part of each district centre—if there is no convenient industrial zone nearby—to accommodate such local industrial premises as the smaller bakeries, builders' and coal merchants' yards, local maintenance and repair depots, and garages to house the vehicles used by district retailers. Light industries could be admitted to these areas by special consent.

ZONING MAP





1

UNPLANNED INDUSTRY



2

1. Mixture of heavy industry and congested housing in Collyhurst.
2. The banks of the River Irwell in the centre of the city.
3. An unplanned industrial estate.



3

Much of our waking life is spent at work. Let us make our work places pleasant. Our industry will be more efficient, our lives happier.

The areas of all the proposed industrial zones, including the three Wythenshawe zones, are listed below. The total acreage leaves only a small margin over the area which has been calculated as necessary to secure proper working conditions for the future industrial population.

Table 3

<i>Special</i>		<i>Light</i>	
	<i>Area</i>		<i>Area</i>
Blackley	234 acres	Cheetham	202 acres
Newton Heath ..	44 "	Levenshulme ..	53 "
Bradford	44 "	Burnage	16 "
Openshaw	200 "	Ancoats	50 "
	550 "	Mayfield	8 "
			329 "
<i>General</i>		Wythenshawe	
	<i>Area</i>	Eastern	110
New Moston and		Western	108
Oldham Road ..	154 acres	Southern	182
Newton Heath ..	105 "		400
Bradford	83 "		729 "
Openshaw	144 "		
Gorton	113 "		
Ardwick	161 "		
Knott Mill	103 "		
Irk Valley	81 "		
Mayfield	21 "		
	965 "		

<i>Domestic</i>			<i>Area</i>
Longsight			30 acres
Withington			4 "
Chorlton			10 "
Moss Side			6 "
			50 "

SUMMARY

	<i>Area</i>
Special	550 acres
General	965 "
Light	729 "
Domestic	50 "
	2,294 "

INDUSTRIAL PLANNING

To the world Manchester spells cotton. In 1914 the cotton industry accounted for one-third of Britain's export trade, and although it has since declined it will unquestionably have a dominant part to play in the economic future of South-east Lancashire. Manchester is at once the warehouse, the nerve centre and the capital city of that great industrial region; it is and must remain first and foremost a market for Lancashire cotton.

STRUCTURE AND DEFICIENCIES

But Manchester does not, and cannot, rely solely on one industry. To secure for itself a high and stable level of employment the city must establish and maintain a balanced industrial structure. It must develop those existing industries which showed themselves sufficiently robust and well rooted to weather the depression of the early thirties and induce them to branch out into related fields. It must also seek to attract new industries, particularly those (like the processing of food) which cater largely for home consumption.

The London County Council Plan revealed that

Approximately 50 per cent of all factories opened in the country during the years 1934-1938, and more than three-quarters of the foreign firms established in England between 1931 and 1935, were located in the London region, while over one-third of all new factories with export connections erected between 1933 and 1938 also selected a London site.

It is vitally important, alike on social, strategic and economic grounds, that this disastrous drift away from the basic industrial regions should be arrested and reversed. That will not happen unless the location of industry is deliberately planned in the public interest.

A comparison of local and national employment figures brings out the tremendous importance of manufacturing industries to the people of Manchester and the surrounding region. It is obvious enough that this is a predominantly industrial area, but few realise how much it depends upon manufacturing as distinct from other forms of industry. For every person employed in these industries in the country as a whole, there are, in proportion, nearly two so employed in the regional area and in the city. The main reason for this is that the predominant textile and clothing industries employ both male and female labour. The result is that any general depression in the manufacturing industries has a correspondingly more drastic effect on employment in the city and over the whole of the regional area.

The first need, then, is to secure a more balanced industrial structure by attracting new industries of the kinds which are now lacking.

The 1931 census of industry showed that employment in Manchester is heavily concentrated in a few manufacturing industries, namely: rubber; textile finishing, dyeing and printing; clothing; paper-making, printing and stationery; cotton; and electrical and general engineering (including textile engineering). It also identified those industries in which the city may be considered somewhat deficient. These are:

- (1) All trades allied to the building industry, including brickmaking and woodworking. (The post-war housing programme alone will necessitate a considerable expansion of these industries within the city and the region. That expansion in turn will doubtless induce a development of newer industries, such as the manufacture of building plastics, pre-fabricated building units, patent wall-boards and lining-boards and special forms of glass. These should, therefore, find advantages in a Manchester location.)
- (2) The food industry. (The existing chemical industries in the district should provide scope for the manufacture of patent and medicinal foods.)
- (3) The heavier and lighter types of engineering.
- (4) Sections of the textile industry other than cotton and its allied trades. Within this category will fall many of the newer industries (such as the manufacture of nylon fabrics and spun glass) which involve the use of plastic compounds.

DECENTRALISATION

The second task of industrial planning is to secure a better distribution of the city's industries in relation to the homes of their workpeople. Decentralisation of industry into specially planned and properly located zones will at the same time improve the amenities of non-industrial areas and ease the strain of daily travel to and from work. At present many of the older industries are concentrated in a well-defined belt which constricts the commercial, civic and entertainment centres of the city and isolates them from the residential areas.

Industry and housing are jumbled together in many districts on the fringe of the central area of the city and among the inner wards. Narrow streets lined with terraced houses lead up to the very gates of old, unsightly, cramped and ill-planned factories. Loading facilities are often crude and confined; accommodation for newer processes is restricted. In some areas industries still carry on in rows of houses hurriedly converted into workshops a century ago. Amid these disordered industrial slums are more recent factories, rising above their outworn neighbours but often occupying every available square inch of ground and thus adding to the general congestion. Sometimes, too, noxious industries are found near those engaged in food production.

Towards the outer areas there is a considerable improvement. Individual engineering works in the Openshaw and Gorton districts have been systematically laid out on a much larger scale, but even these are mixed up with housing and tend to grow somewhat disorderly as new extensions are added from time to time.

The 1921 census of workplaces showed that nearly 55,000 people, or almost half of those travelling daily to work in the city, came from districts beyond the boundary of the regional planning area, and that Manchester's net daily intake from outside the region was over 40,000 people—more than its net intake from within the region.

Thus, the need for some decentralisation of industry to relieve the strain of daily travelling was already evident in 1921. It has grown since, and the establishment of a new satellite town to accommodate people displaced by redevelopment in Manchester would, of course, entail a further dispersal of industry.

THE INDUSTRIAL SURVEY

To clarify the problems of industrial interrelationship and decentralisation, two questionnaire forms were prepared by the Regional Planning Committee in collaboration with the Manchester Chamber of Commerce.

Questionnaire A was circulated to undertakings in areas of mixed industrial and residential development, principally for the purpose of determining whether these areas should be zoned for industrial or residential use, and secondarily to ascertain the difficulties which would arise, as well as the benefits which would be gained, if in due time the industries were moved. Questionnaire B was sent to undertakings in areas which, being already predominantly industrial, would obviously be zoned for industrial

purposes, in order to ascertain the character and problems of each industry, so that such remedies as lay within the scope of planning might be incorporated in the Plan.

The industrial zones shown on the Zoning Map are mainly existing industrial areas extended and rounded off to form distinct units, suitably disposed in relation to one another and to other forms of development. The particular requirements of different types of industry, as revealed by the questionnaires, have been duly taken into account in formulating these proposals. It should here be pointed out, however, that recent technical developments have weakened some of the factors which have hitherto tended to immobilise certain industries. For example, progressive mechanisation and the breaking down of craftwork into simple operations in which unskilled employees can easily be trained have freed some industries from their dependence on a specialised labour market. War-time experience affords abundant evidence of such adaptability. Again, the field of location of some sections of the engineering industry (particularly aircraft manufacture) has been widened by the tendency to discard iron and steel components in favour of lighter and more durable aluminium and magnesium alloy counterparts, which in their unfabricated state are more easily transportable. Further, the growing preference for electricity in place of steam as a motive power greatly increases the mobility of industry. It seems probable, therefore, that better services and communications will in future play the greater part in determining the location of industry.

As accommodation becomes available elsewhere for people living in the areas zoned for industry, the sites of old houses should be cleared and prepared for the industries to be displaced by the redevelopment of other areas for residential, commercial or other purposes. At the same time the present street pattern should be rationalised so that the industrial sites may be adequate in size and convenient in shape, with good road transport facilities and (in some cases) rail and water access.

Thus the redevelopment of the industrial zones will proceed in stages (parallel with the stage redevelopment of residential areas) until each is exclusively occupied by industrial premises, properly spaced to secure adequate daylighting and room for lawns and trees.

HIGHWAYS

The number of motor vehicles using this country's roads increased between the wars from about 350,000 in 1919 to about 3,100,000 in 1938. Hitherto it has been possible to accommodate this swelling flood on a highway system originally designed for horse-drawn traffic, but only because that system was laid out on a scale so lavish that for a long time we hardly realised what a tremendous increase in road usage was taking place. Immediately before the present war, however, some of the main streets of our city were already loaded to the limits of their carrying capacity, and most of the others were rapidly approaching that condition; but for the war, indeed, road

traffic in many parts of Manchester would by now have become chaotic.

After the war we shall be confronted by a further huge rise in the number of motor vehicles on our roads. This will create a problem different in kind from any we have had to tackle before—the problem of wholesale saturation. It can be solved only by a complete overhaul of our main highway system. The time for expensive makeshifts and unsatisfactory palliatives is past. We must have a road network properly designed to serve its essential purpose—the smooth, safe and speedy passage of a vastly expanded volume of motor traffic—and we must find the quickest and most economical way of getting it.

EXISTING DEFECTS

The trouble with Manchester's main roads is not simply that they are too narrow. They could carry far more traffic than they do if their capacity were fully developed and properly used, and if their layout were designed to distribute the load more evenly throughout the whole system. Eight national or regional highways converge on the city centre, with the result that inter-suburban and long-distance traffic having no business in the central area constitutes about 50 per cent of the load on its main streets.

The lack of continuous ring roads to drain off and expedite this through traffic is the main and most obvious defect of our highway pattern.

The parked vehicle is one of the chief causes of lost traffic-carrying capacity. More or less continuous parking causes the complete loss of one traffic lane—the one that should carry the most traffic—because the blocking of the kerb lane causes the slower-moving vehicles to move into the next lane, and so on, so that in effect it is the centre lane that is lost. Even occasional parking causes the loss of at least half the capacity of this centre lane.

The practice of building up the frontages of all roads is a survival from the pre-motor era. Frontage development on a new by-pass, laid out at great expense through open country, has often made it necessary to “by-pass the by-pass”. In the case of urban highways the error may be less obvious, but it is no less expensive.

The city main road was originally designed to serve the buildings erected on each side of it. To-day its primary function is to carry large numbers of fast-moving vehicles from place to place. The true economy, in the light of future traffic requirements, lies in seeing that on no account are its frontages developed in such a way that it has to be used also as a service road.

Of all such development the shopping frontage is the most wasteful. Not only does it make some parking and stopping of traffic inevitable; it also entails a concentration of pedestrians continually crossing and recrossing the road, aggravating the congestion, further reducing traffic movement and capacity, and, worst of all, adding to the toll of life and limb.

Frequent side-street junctions can have as disastrous an effect as car parking, for the movement of vehicles into

and out of a main road, necessarily at very low speeds, checks the flow on all its traffic lanes.

The capacity of a highway system is also limited by the extent to which movement through its major junctions is restricted. Unless these junctions can easily accommodate the amount of traffic coming to them from all directions, the capacity of the roads between them cannot be fully developed. It can be said that there are no major road junctions in the whole of Manchester capable of carrying the traffic which must be expected in the comparatively near future.

The slowest vehicle in any traffic stream determines its speed, and hence the carrying capacity of the lane it occupies. Moreover, the slow-moving vehicle substantially reduces the capacity of all traffic lanes when it turns to the right. Horse-drawn and other slow-moving traffic must be eliminated, as opportunity serves, from the civic, banking and administrative centre of the city.

The laying of sewers, mains and cables under the carriageway contributes to traffic congestion by giving frequent occasion for the familiar “hole in the road”. Our new or widened major highways must be free from this impediment.

No list of the shortcomings of the existing highway system would be complete without reference to the appalling number of accidents occurring daily on our roads—an evil which has come to be accepted as almost inevitable. From 1931 to 1938 (inclusive) the number of persons killed on the roads in Great Britain was 54,247, and the number injured 1,759,152. The figures for Manchester during the same period were 725 and 29,297 respectively; if all these people were Mancunians, then about one in every 1,180 of our citizens was killed and one in every 29 was injured. This slaughter must not go on.

TRAFFIC RESEARCH

In drafting a highway plan to remedy these faults and provide for future needs the first thing to be done was to find out, in quantitative terms, how the existing road system was used before the war. Accordingly in 1941 we made a detailed study of traffic conditions throughout the city, taking peak-hour counts at all the main cross-roads. Some of these junctions had also been covered by the 1938 traffic census, and by comparing the two sets of figures it was possible to make fairly reliable estimates of the pre-war movements at the other junctions also.

The second preparatory step was to determine how much traffic the post-war highway system should be designed to carry. In 1938 Great Britain had only one motor vehicle to every 17·7 persons, as compared with one to every 4·4 in the United States. It is not likely that we shall ever approach the American ratio, but we must expect road traffic in this country to grow to about twice its 1938 density.

Our next tasks were to decide how future traffic might be expected to distribute itself. The method adopted was to work inwards from the national and regional highway network, building up the load on each approach route

step by step from its constituent elements. The 1938 census, supplemented by our 1941 survey, indicated for each route the amount of traffic at pre-war density standards that would continue to arise from existing development and communications. To this figure—doubled in accordance with our estimate of ultimate overall density—was added the number of extra vehicles that might reasonably be expected to use each route as a result of the proposed dispersal of population from congested districts in the city and the region. The probable effect of future national highways in diverting long-distance traffic was also taken into account.

This method made it possible to form a fairly reliable estimate of the extent to which a series of ring roads would "tap off" the inward flow before it reached the city centre, and hence to forecast the residual volume to be accommodated on succeeding sections of each radial approach road.

We had next to determine the maximum carrying capacity of a traffic lane, of various combinations of traffic lanes, and of different types of road junction, and to find out the extent to which the working capacity fell short of the maximum under particular traffic conditions. We were then in a position to calculate the minimum carriageway width required for each major highway, and the type of junction—and hence the area—required for each major intersection. Unfortunately the quantitative assessment of traffic-lane capacities, essential though it is to the establishment of a scientific approach to highway design, has been generally neglected. A good deal of original research had therefore to be undertaken before reliable figures could be worked out.

RING ROADS

These preparatory investigations went a long way towards defining the general pattern to which a rational road network for Manchester must conform. The most important conclusion to which they point has already been foreshadowed. Half of the traffic brought into the city centre by the present radial highways has no business there. Its volume, excessive as it was before the war, would probably be more than doubled in the next 25 years if the existing road pattern were retained. But to make the streets and crossings of the city centre capable of handling anything like twice their pre-war load is out of the question—it could only be done by converting the whole central area into a tangle of clover-leaf flyovers, leaving little room for buildings. Something must be done, and done quickly, to divert part of the mounting tide of vehicles that will soon be surging towards these choked channels from every point of the compass.

It is accordingly recommended that the authorities should undertake the construction of four major ring roads, offering rapid transit to long-distance and inter-suburban traffic which has no occasion to pass through the city centre. These are named on the Zoning Map. (The Outer Ring Road runs for the most part outside the city's boundaries.)

But the needs of future traffic, compelling though they are in themselves, were not the only consideration that influenced our decision to adopt a "spider's web" pattern of ring and radial roads. The highway system had to be harmonised with the zoning proposals; in fact, we had to treat the planning of the road lines and of the spaces between them as a single problem, balancing traffic requirements against the needs of neighbourhood living until we had devised a composite scheme satisfactory from every point of view. It will be observed from the Zoning Map that the radial roads are more evenly spaced in the Plan than in the existing system. Together with the proposed ring roads they divide the city into a series of self-contained precincts of adequate width and suitable shape, each bounded by major roads.

HIGHWAY FINANCE

Subject to this broad principle the exact line of each highway was fixed in the main by considerations of economy. At first sight it might seem that the cheapest and most sensible course would be to widen those existing main and minor roads which most nearly approximate to the lines of an ideal network. But closer inquiry showed that such a procedure would often be wildly extravagant as well as unsatisfactory on other grounds. The explanation lies in the enormous difference in value between "frontage" land and "back" land. For example, the cost of adding only ten feet to the width of a section of Stretford Road (an important shopping street in a congested residential district) would be about £500 a lineal yard. To widen it by a further 110 feet, however, would cost only another £140 per lineal yard, while a new major highway running parallel to it could be built through adjoining slum property for only £60 per lineal yard.

Our final task was to consider the type of highway design appropriate to various carriageway widths in differing situations, and hence to determine the overall width of each section of road.

It is recommended that where four or more traffic lanes are required the two carriageways should be separated by a central reservation; they should be further sub-divided by a raised kerbing wherever the volume of traffic calls for four traffic lanes in one direction. The central reservation should be broken at points some distance before and beyond the entry of a minor road, so that right-turning traffic from the minor road does not cut straight across. The width of the central strip must depend on the volume and type of right-turning traffic entering the major road; where it is sufficiently wide it should be grassed and planted with groups of trees and flowering shrubs.

Verges offer a still better opportunity for improving a road's appearance. In the central area, of course, grassed verges would soon be trodden bare. In open development, however, the scope for applying the parkway principle should be used as fully as possible.

A major parkway should have broad grass margins, not necessarily of uniform width, capable of being landscaped



1



2

PLANNED INDUSTRY

1. A well-designed industrial building set in spacious surroundings. Co-operative Wholesale Society's works at Irlam.
2. Provision for workers' welfare. A social centre and canteen with attractive rest garden, serving a number of small factories.
3. A group of standard factories, with good natural lighting, amenities and services.
4. Initial development of a well-defined industrial estate, served by road and rail transport facilities.

The last three photographs are views of the Hillington Industrial Estate, Glasgow.

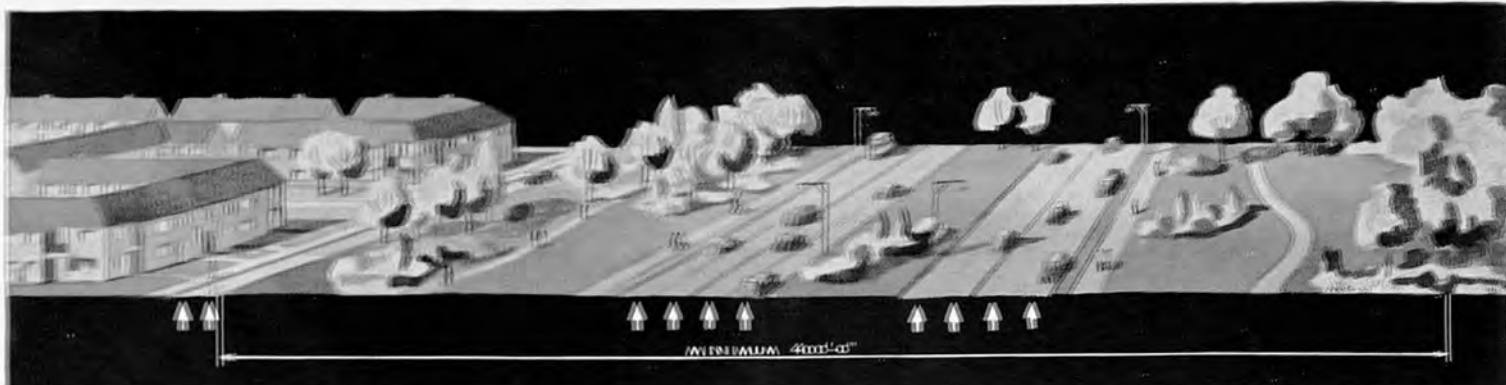
That industry can be orderly, clean and attractive is obvious from these photographs, which should be compared with those on Plate 4.



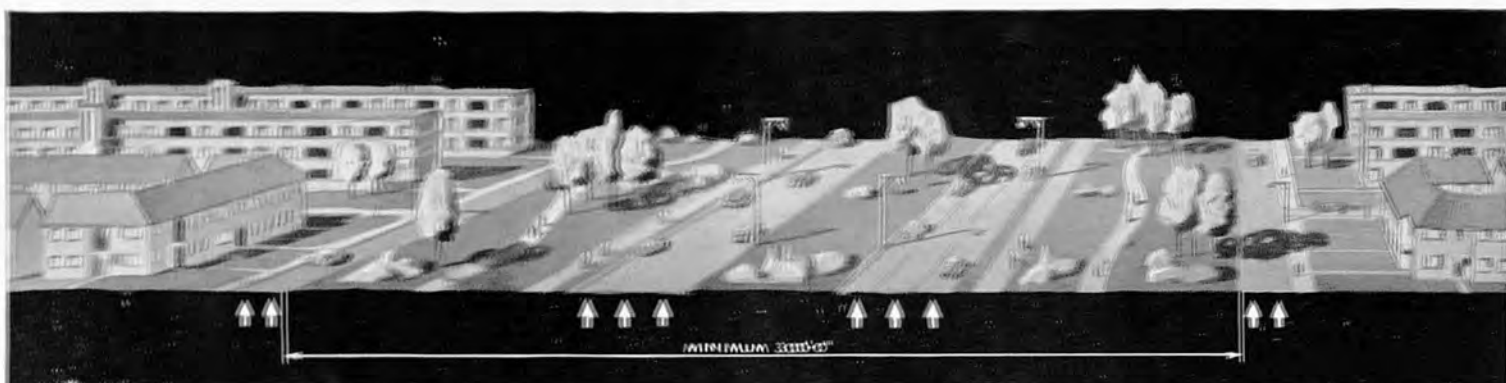
3



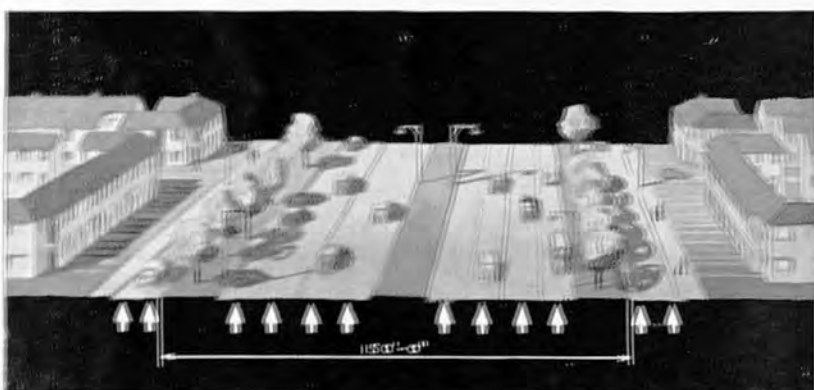
4



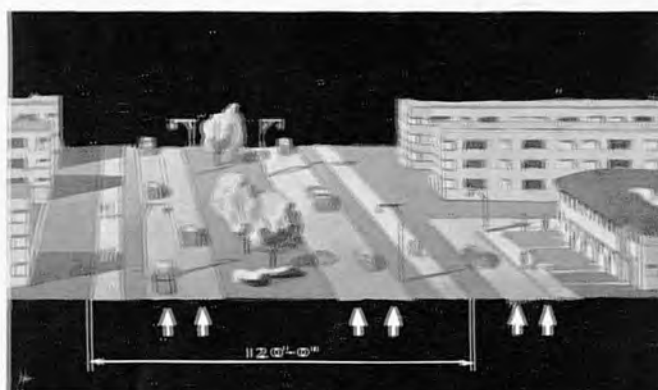
PATHWAY ..



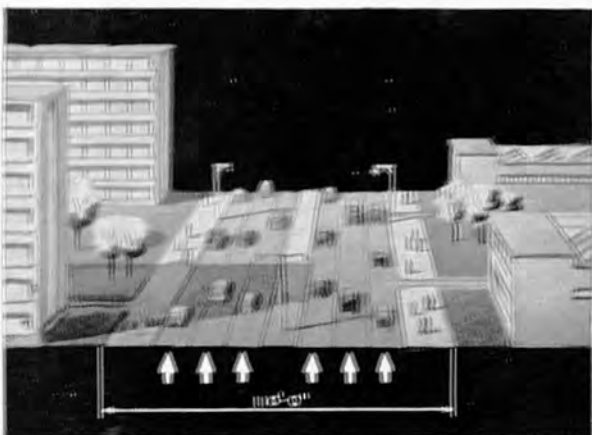
WIDER PATHWAY ..



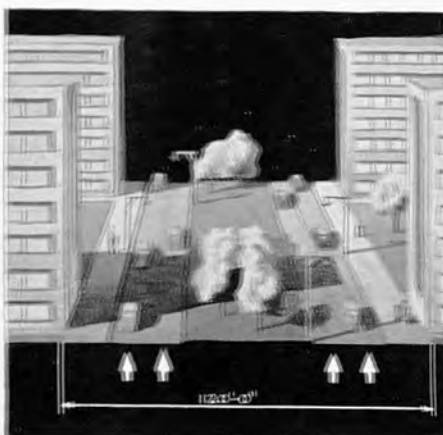
WIDER ROAD, URBAN AREA ..



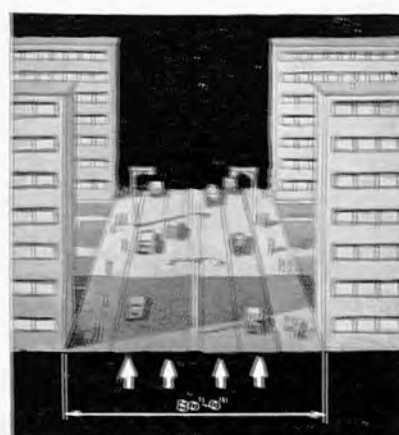
WIDER ROAD, URBAN AREA ..



WIDER ROAD, COMMERCIAL AREA ..



CITY CIRCLE ..



COMMERCIAL AREA ..

HIGHWAY WIDTHS

with large groups of trees and flowering shrubs. It should take in such natural features along its route as spinneys, streams and banks, and should merge wherever possible into existing parks. Footpaths should lead through these natural and artificial lawns and glades at some distance from the carriageway, and cycle tracks should be separated from the motor traffic by at least a six-foot verge. No direct access to buildings should be permitted. The central reservation should always be of maximum width, irrespective of traffic considerations, so that it can be appropriately planted as a balancing feature designed to be viewed from across the carriageways.

The minimum overall width required for a major parkway with three-lane carriageways in each direction is 400 feet. Minor parkways, with an overall width of up to 200 feet, will help to separate adjoining residential neighbourhoods, or to screen industrial development where it adjoins a residential area.

Typical sections of these and other types of road are shown on Plate 6. The widths of some of the more important highways are given in Table 4 below, together with their capacities and the approximate dates at which the corresponding highways in the existing system will become congested.

If our forecast of future traffic growth proves too conservative, strips of verge or central reservation can be converted into one extra traffic lane in each direction. This would suffice to enable each road to accommodate about 1,000 more vehicles. It is not in any case proposed to build carriageways up to the full width indicated by our calculations of future requirements until the actual traffic conditions make this necessary. All that is intended is that enough land should be reserved to enable extra traffic lanes to be added as and when they become necessary. In the meantime these reserves will doubtless be grassed or planted with shrubs.

Table 4

	1938 peak flow in one direction Vehicles per hour	Estimated capacity of existing road in one direction Vehicles per hour	Approximate date when existing road will become congested	Estimated ultimate peak flow in one direction Vehicles per hour	Estimated capacity of proposed road in one direction Vehicles per hour	Details of proposed dual- carriageway roads	
						Width of each carriageway in feet	Normal total width in feet
City Circle Road							
Portland Street	706	762	1950/55	1,353	1,542	24	120
Inner Ring Road							
Every Street—Hyde Road ..	630	720	1950/55	1,632	2,462	36	110
Hyde Road—Chester Road ..	—	—	—	1,401	1,496	24	120
Intermediate Ring Road							
Bury New Road—Rochdale Road	425	720	1955/60	1,177	1,759*	24	Parkway
Rochdale Road—Ashton New Road	600	720	1950/55	1,711	2,861*	36	Parkway
Outer Ring Road							
Heaton Park—Broadway ..	520	810	1960/55	1,150	1,588	24	120
Cheetham Hill Road							
North of Queen's Road ..	800	1,404	1960/65	1,702	2,462	36	120
South of Queen's Road ..	850	1,496	1960/65	1,370	1,496	24	100
Rochdale Road							
North of Livesey Street ..	580	675	1950/55	1,350	1,440	24	120
South of Livesey Street ..	480	675	1955/60	821	1,440	24	80
Oldham Road	830	1,226	1960/65	1,868	2,294	36	120
Ashton New Road							
East of Mill Street	615	720	1950/55	1,100	1,496	24	100
West of Mill Street	430	720	1960/65	750	1,496	24	90
Ashton Old Road	570	720	1955/60	800	1,496	24	90
Hyde Road							
East of By-pass D 23	630	720	1950/55	1,550	1,759*	29	120
West of By-pass D 23	700	720	1950/55	1,100	1,404	24	100
Stockport Road							
Crowcroft—By-pass D 23 ..	810	810	1945/50	2,700	3,640	48	150
Inner Ring Road—Crowcroft ..	1,230	1,265	1950/55	1,900	2,462	36	120
Anson Road							
South of Inner Ring Road ..	810	1,100	1950/55	1,720	2,462	36	120
North of Inner Ring Road ..	1,090	1,100	1945/50	1,200	1,404	24	120
Cambridge Street/Palatine Road	435	630	1955/60	1,124	1,266	24	120
Princess Parkway							
South of Barlow Moor Road ..	780	1,266	1950/55	3,000	3,735*	48	Parkway
North of Wilbraham Road ..	840	1,266	1950/55	1,780	2,581*	36	Parkway
Withington Road							
South of Greame Street ..	370	720	1960/65	1,500	1,769*	29	120
North of Greame Street ..	370	720	1960/65	1,120	1,496	24	100
Barlow Moor Road							
South of Mauldeth Road ..	660	765	1950/55	1,400	1,551*	29	120
North of Mauldeth Road ..	540	630	1950/55	1,233	1,404	24	120
Chester Road							
South of Link Road 17/7 ..	740	765	1950/55	2,165	2,238	36	130
Link Road (Regent Road to Ashton Old Road)	—	—	—	897	1,312	24	90

* Excluding cycles, for which cycle tracks or added carriageway widths are proposed.

THE INTIMATE SOCIAL LIFE of the village and small town engenders a natural feeling of community. Everyone knows his neighbours' troubles, feels that their welfare is his own concern, and can freely take his part in the discussion and adoption of collective remedies for common ills. So it was also in the original townships that grew up within the present boundaries of Manchester. But when these separate units coalesced and were absorbed into a sprawling, shapeless mass of bricks and mortar their identity became blurred, and with it the civic sense of their inhabitants. The community became a remote abstraction rather than a fact of everyday experience, the individual could no longer make his voice heard by the vast multitudes of his neighbours, and the means no longer existed whereby a local opinion might crystallise and find effective expression. Manchester, in short, had lost touch with its citizens; it is hardly surprising, then, that most of them lost interest in the growth and government of Manchester.

The comradeship of war has re-awakened this sense of community. It must surely be a primary objective of any plan for Manchester to create a civic structure that will nourish it and give it a peace-time outlet.

DESIGN FOR LIVING

The family forms the basic unit of the social pattern. Home life, at its best, is an unfailing source of the sympathy and co-operation which are the essence of neighbourliness. Here the child, secure in the care and affection of his parents, develops his first loyalties and comes to realise that there are other people in the world besides himself. The planning of homes that will make for healthy and happy families is therefore the starting-point of our design for living.

It is at school that the child's character and corporate spirit are formed; in loyalty to his school, as well as to his family, he begins to widen his horizons and gain a truer sense of social obligation. A broader general education will in future bring him a better understanding of the improvements that could be made in his environment and way of living, and a keener appreciation of the cultural heritage he will want to enjoy in later life. A revival of

personal performance on the stage, in the practice of arts and crafts and in debate may also be expected.

As the next stage in this evolutionary process the young citizen should be encouraged to participate in the affairs of his immediate neighbourhood. Thus the neighbourhood unit is conceived as an extension of the civic pattern based on the home and the school. It should include all types of dwellings and incorporate an average cross-section of the population. It should be self-contained as regards primary education and the everyday requirements of all members of the family. It must be large enough to make an efficient social unit, but small enough to function as a real social organism in whose life every individual can take a responsible share, knowing that his voice will be heard. All its major activities should be concentrated in the neighbourhood centre, with one dominant building—the community centre—equipped to meet the basic social and cultural needs of both adolescent and adult, and serving as the sounding-board for an articulate local citizenship.

Such a neighbourhood cannot cater for all the communal needs and interests of a progressive population. Accordingly, several neighbourhoods should be grouped together to form an intermediate unit—the district—large enough to support a complete system of secondary and further education. The district centre should be so constituted and designed that it will soon become a regular meeting-place for people in all the constituent neighbourhoods, to the advantage of tradesmen and to the benefit of all concerned in the promotion of social, cultural and political activities. Its district hall should serve as a bridge between the intimate parochial concerns of the community centre and the larger affairs of civic government. In many cases such districts would revive old townships whose identities have been submerged in the unbroken expanse of modern Manchester.

Ultimately the city itself should mobilise the energies both of the revitalised districts within its boundaries and of the outlying towns, expressing them in the highest forms of urban civilisation. Only then will the best brains and talents nurtured in the region cease to be drained away by the lure of London. Only then will Manchester come once more into its own.

HOMES

The general public hardly realises how many people in the industrial cities of this country are still living in what may be classed as slum* areas. In Manchester, thanks to the energy of the corporation, the worst types of slum no longer exist; yet obsolete houses still account for about one-third of all the city's residential property.

About 48,000 of Manchester's houses are more than

75 years old, and some 83,000 more than 55 years old. To appreciate the full significance of these figures it should be understood that before 1868 there were no building byelaws whatsoever. Speculative builders were free to cram as many houses on to an acre as was physically possible, with no restrictions as to light, air, or room space. Until 1890 damp-courses (to prevent moisture rising

* It must be clearly understood that no reproach to the occupier is implied by the word "slum". Many dwellings that are kept in a most creditable state of cleanliness must nevertheless be condemned because they are structurally unsound, deficient in living space and sanitation, and overcrowded on the ground.

THE WAY WE LIVE NOW

1. **The redevelopment problem.**

Endless rows of grimy houses: no gardens, no parks, no community buildings, no hope. 1



2. **Slum clearance.** This was a beginning: the people who lived here moved to the pre-war housing estates.



3. **The housing estates** were an improvement: but here people live on main traffic routes, noisy, and dangerous for children: they have no meeting-places, no community life.



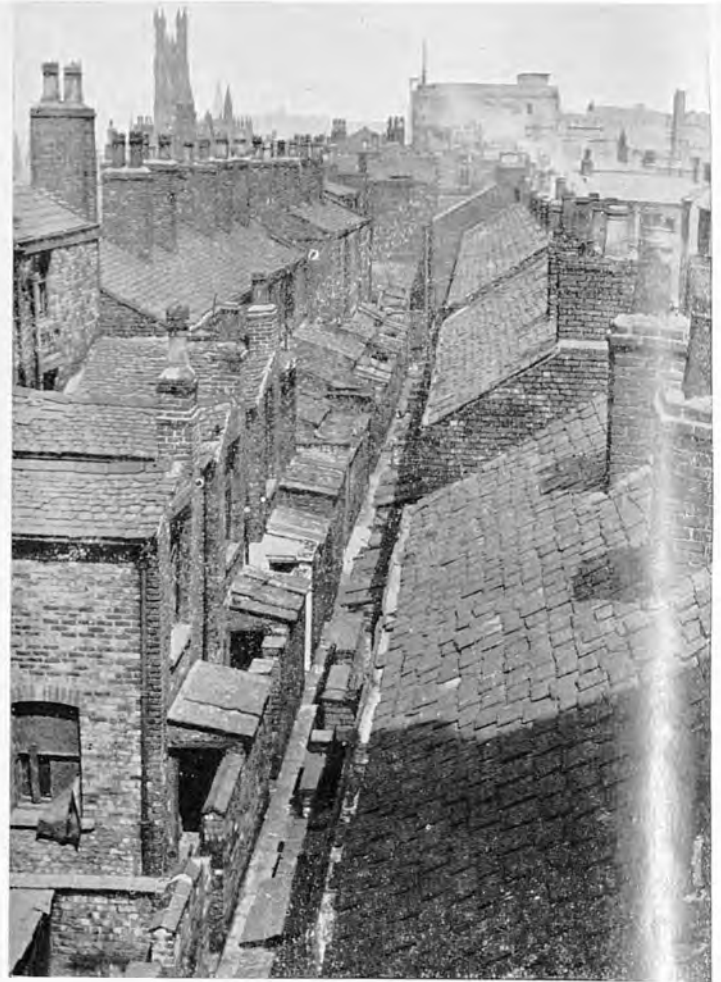
4. **Wythenshawe.** A later development. The main road by-passes the town; trees are preserved, schools set in ample playing-fields; but there is still no provision for community life, for full living. We can do still better than this.





Before 1850

2



1

Before 1850



3

1850-1870

1870-1900



4

A HISTORY OF HOUSING

NINETEENTH CENTURY

Pre-byelaw housing

1, 2 & 3. In the absence of controlling legislation and before the national conscience was aroused against the evils of bad housing in the large industrial towns, dwellings were crowded together with complete disregard of the need for sunlight, amenity or privacy.

Early byelaw housing

4. Byelaws establishing minimum standards of sanitation and of space around dwellings resulted in some improvement, but the greater distance between fronts of houses was still completely occupied by roadway and pavements.

A HISTORY OF HOUSING

TWENTIETH CENTURY

5 & 6. Further legislation brought about a gradual amelioration in general conditions for a large proportion of town-dwellers, but rigidity of layout remained a characteristic of the period. The imposition of a building-line made possible the provision of small forecourts, but the standards of amenity and natural lighting were still low.

7 & 8. The Tudor Walters Report of 1918 resulted in the early inter-war housing schemes showing a new and greatly improved approach to the problem. The number of houses to the acre was drastically reduced and the semi-detached house became the general rule. However, the deficiencies of unimaginative layout are still apparent.

9. After 1930 the appearance and amenities of housing estates were still further enhanced and desirable natural features were preserved and incorporated wherever possible. In addition, the layout allowed for the planting of communal gardens and trees at focal points.

Perfection and finality are never attained. The progressive improvement shown here must be maintained; we must not allow ourselves to be stamped into the retrogressive step of building homes with a cramped and stereotyped layout lacking in proper amenity.

Plate 9

1930-1939



9



5

1900-1910



6

1910-1918



7

7 & 8. 1918-1930



8

MUNICIPAL SCHOOLS



SCHOOLS IN RELATION TO NEIGHBOURHOODS IN NEW DEVELOPMENT

EDUCATIONAL SYSTEM

Sufficient accommodation for the needs of each neighbourhood			PRIMARY		
			5 Nursery	$\frac{1}{3}$ acre each	2-5 yrs.
			2 Infant	$1\frac{1}{2}$ acres each	5-7 yrs.
			2 Junior	$5\frac{1}{4}$ acres each	7-11 yrs.
			SECONDARY		
Modern			Grammar		
8 sites—17 acres each for 7 neighbourhoods.			1 site—20½ acres for 5 neighbourhoods.		
General education			Academic education		
11-16 yrs.			11-18 yrs.		
			Technical		
			1 site—20½ acres for 4 neighbourhoods.		
			Technical education		
			11-18 yrs.		
			County College.		
			1 site—12½ acres for 6 neighbourhoods		
			University and Technical College.		

ROMAN CATHOLIC SCHOOLS



SCHOOLS

1. The old school. Vine Street, Hulme—a cramped building on a congested site.
2. The new school. Haveley Hey, Wythenshawe—light, airy and with generous playing space.

Plate 10



from the ground through the walls) were not required; back yards might be no more than 70 square feet in area and back passages only five feet in width. Baths were an unheard-of luxury; even in houses built under the 1890 byelaws they are rare. The billeting survey reveals that only 55.2 per cent of all houses in the city have baths, while in some of the more urgent redevelopment areas the position is much worse:

Table 5

Ward	Total houses	With baths	Percentage
Miles Platting	4,781	907	19
Beswick	6,703	605	9
St. Michael's	3,686	103	3
New Cross	4,143	191	5
Ardwick	5,576	837	15
Medlock Street	5,076	689	14
St. George's	6,089	327	5

The redevelopment of these congested residential areas confronts Manchester with one of the greatest problems in its history, a problem which calls for imagination, realism and a sense of social responsibility. The houses and public buildings erected during the next decade will stand for 60 to 100 years, a constant reminder for succeeding generations of the mental calibre of the people ultimately responsible for them—the present citizens of Manchester.

Our first steps must be to decide in what form each type of dwelling should be built, what internal accommodation should be provided, and how much space is needed for gardens, front and back.

TYPES OF DWELLING

Semi-detached **Houses** are generally more popular than terraced blocks. This is partly a reflection of our national regard for privacy and partly a reaction against the long, monotonous terraces built during the nineteenth century. From an architectural point of view, however, there is much to be said for building small houses in a variety of terrace layouts; moreover, this type of development is so much more economical in land that it will certainly have to be used wherever a maximum density is required. The prejudice against it will doubtless be allayed if the back doors of all terrace houses are directly accessible by means of a passage between each pair, and if their internal arrangement and the construction of party walls are such as will minimise the transmission of noise.

Cottage Flats represent a compromise between the dwelling-house and the normal flat. They are eminently suited to the requirements of single persons, widows and older couples. Each occupies one floor (with independent access) of a two-storey building which can, if necessary, be embodied in a terrace layout.

Flats on the upper floors of three-storey blocks will normally be reached by common staircases, but lifts should be installed in all blocks of four storeys or more. Common balconies may then give access to a number of flats on each floor.

Among the unpopular features of life in many existing flats are noise, lack of privacy, the difficulty of looking after children in the absence of a private garden, a "barracks" atmosphere, inconvenient provision for refuse disposal and coal delivery, lack of storage room at ground level and inadequate laundry facilities.

Many of these defects can be minimised by the adoption of proper standards of accommodation and design, but some of them are inherent in flat development. Balconies do not compensate for lack of direct access to a back garden, and parents in upper-floor flats cannot keep an eye on children playing in the communal grounds below. For these reasons the Medical Officer of Health, in a report to the Public Health Committee in 1943, declared that "flats are not suitable dwellings for families with small children, or for young married people", and this opinion has been endorsed by the corporation.

Maisonettes are two-storey dwellings incorporated in large multi-storey blocks. They are normally approached by lifts and common balconies, but each maisonette has a private internal staircase to its own upper floor. Access balconies are required only on alternate floors and so do not overshadow the living-rooms, nor are bedrooms made noisy by people passing their windows. Thus two of the major drawbacks of the ordinary flat are eliminated.

Special Accommodation of various types is proposed for elderly and single persons, who are now often obliged to take lodgings with families in larger houses. Many single people prefer to live in individual flats, but the needs of those who want company or require attendance may best be met by the erection of specially designed service hostels with both private and communal rooms. The special accommodation for old people would usually take the form of two-storey terraces of small cottage flats arranged round communal gardens.

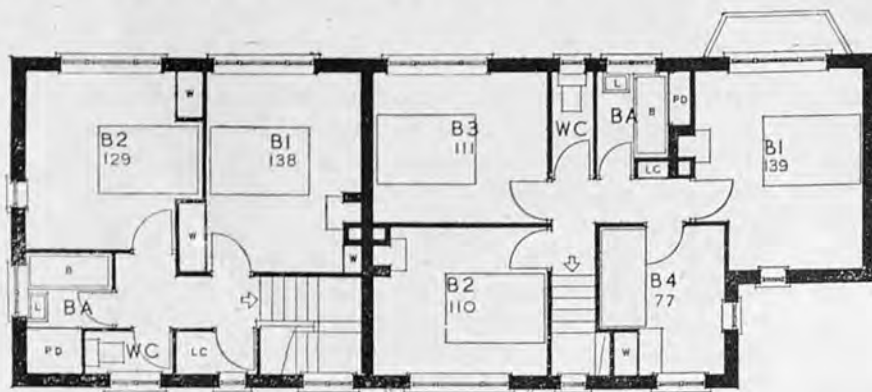
INDOOR SPACE

The object of good domestic design is to secure sufficient room, easy living conditions and good lighting within a reasonably compact ground space. The plans for post-war dwellings of various types prepared by the Director of Housing and reproduced overleaf are based on the recommendations contained in two recent Government documents, "Design of Dwellings" (the Dudley Report), issued by the Ministry of Health, and "Housing Manual 1944", issued jointly by the Ministries of Health and of Works. The prototypes eventually approved by the corporation may not conform with these plans in every detail, but they are likely to incorporate the same general principles.

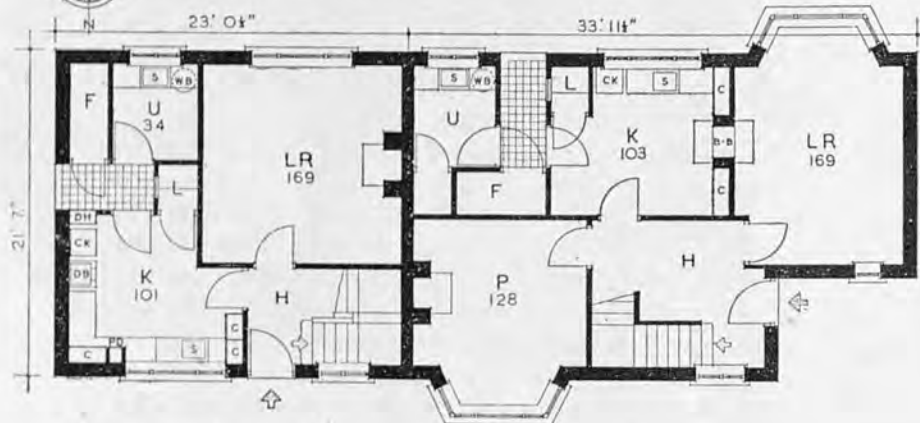
The Dudley Report suggests the following alternative dimensions for ground-floor rooms:

	Minimum areas
(1) Living-room	160 square feet
Kitchen with space for meals	110 " "
Utility room	35 " "
(2) Living-room with recess for meals	210 " "
Kitchen for cooking and laundry	100 " "

PROTOTYPE PLANS OF HOUSES AND COTTAGE FLATS.



FIRST FLOOR PLANS



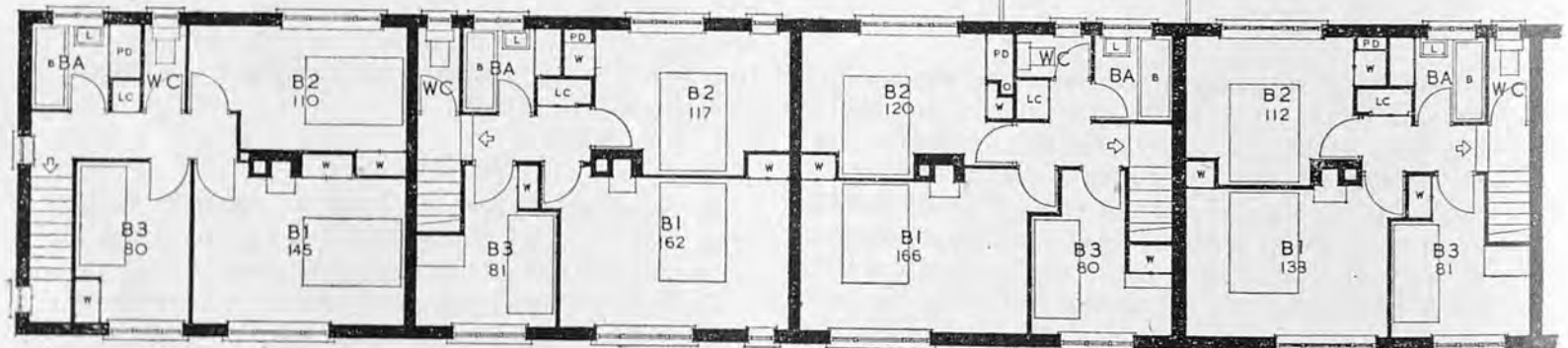
GROUND FLOOR PLANS

A2.

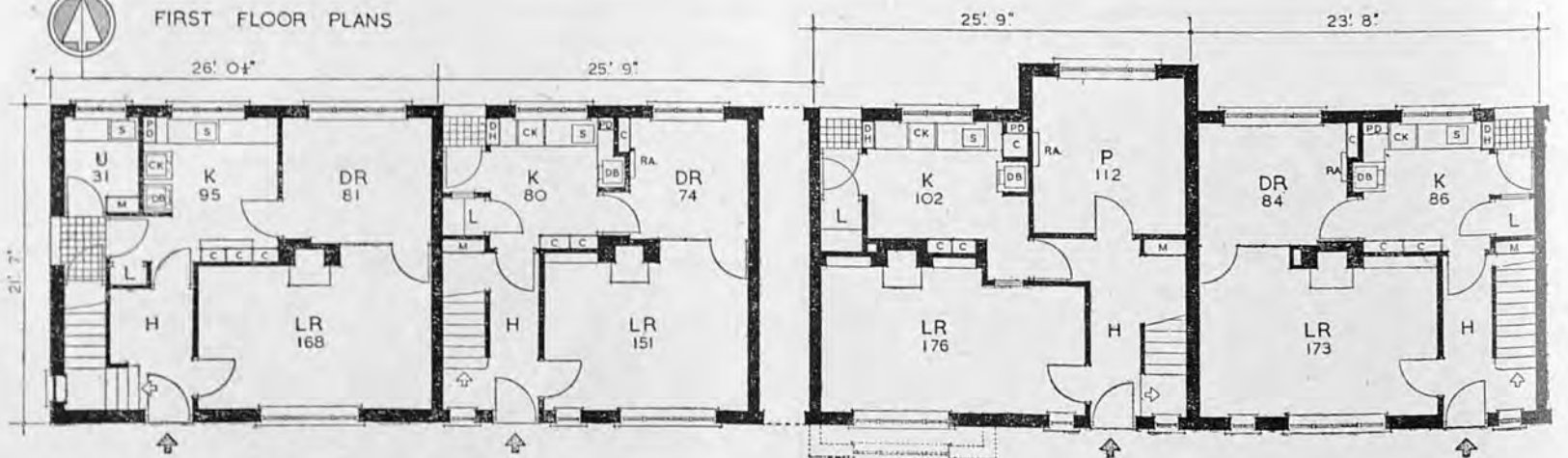
842.5 SQUARE FEET.

B4.

1178 SQUARE FEET.



FIRST FLOOR PLANS



GROUND FLOOR PLANS

A3. END UNIT.

965.5 SQUARE FEET.

A3. INCORPORATING PASSAGE.

898 SQUARE FEET.

B3. A4.

1012 1036 SQUARE FEET.

A3.

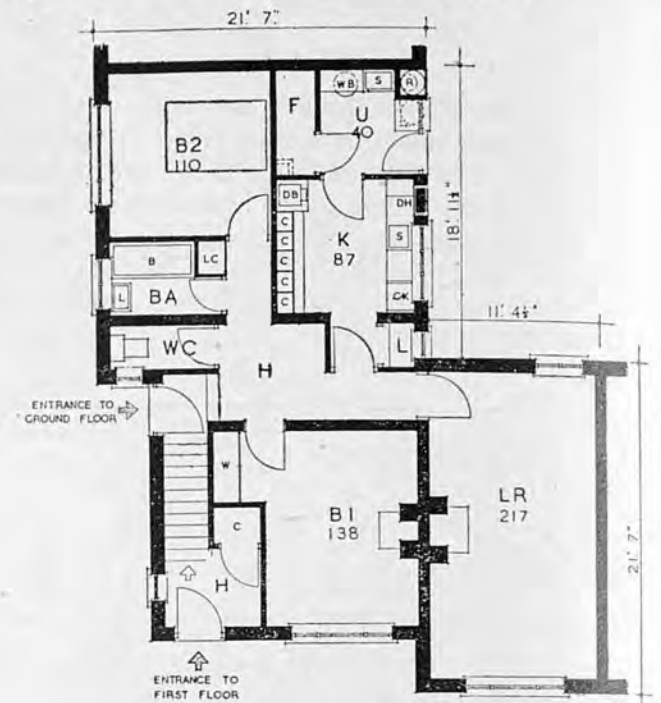
898 SQUARE FEET.

GEORGE KENYON, A.R.I.B.A., A.M.T.P.I.
A. WADDICAR, L.R.I.B.A., A.M.T.P.I.

Diagram 4

Including Bay shown dotted.
Living room area increased to
200 sq. ft. and parlour becomes
fourth bedroom.

JOHN HUGHES, B.A.R.C.H., F.R.I.B.A.
DIRECTOR OF HOUSING,
MANCHESTER.



A2.

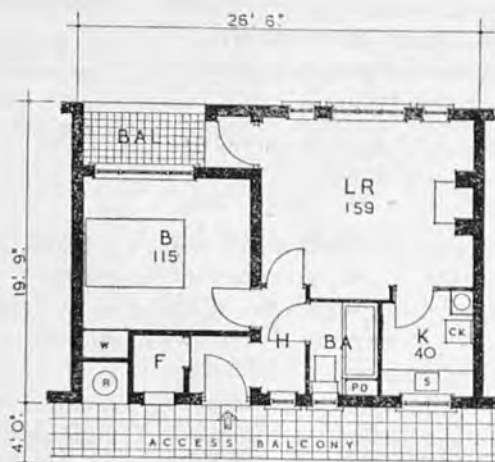
GROUND FLOOR PLAN
EXTERNAL ANGLE UNIT INCORPORATING
TWO A2 COTTAGE FLATS.

FLOOR AREA OF EACH FLAT, 880 SQ. FEET.
FIRST FLOOR PLAN SIMILAR.

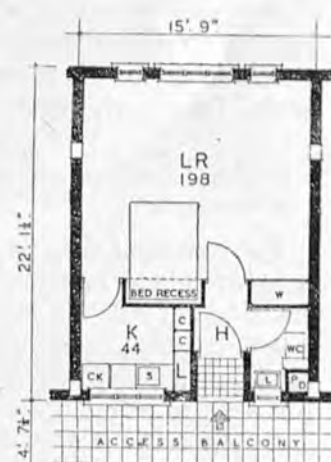
PROTOTYPE PLANS OF RESIDENTIAL FLATS.

KEY TO ABBREVIATIONS.

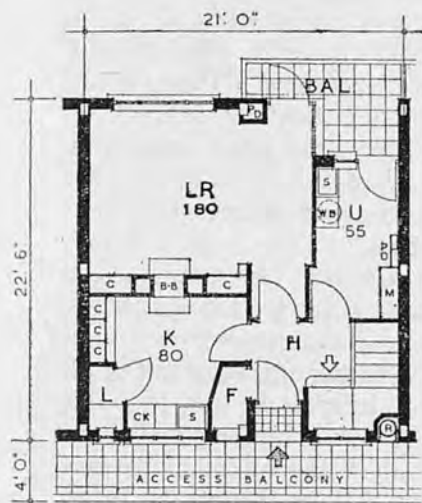
BR	denotes	BED RECESS.
A1	..	NON PARLOUR : ONE BEDROOM.
A2 TWO ..
A3 THREE ..
A4 FOUR ..
B3	..	PARLOUR TYPE THREE
B4 FOUR
H	..	HALL
LR	..	LIVING ROOM
DR	..	DINING RECESS
P	..	PARLOUR
K	..	KITCHEN
L	..	LARDER
U	..	UTILITY ROOM
F	..	FUEL
B	..	BEDROOM
BA	..	BATHROOM
WC	..	WATER CLOSET
BAL	..	BALCONY
PD	..	PLUMBING DUCT.
C	..	CUPBOARD.
W	..	WARDROBE.
LC	..	LINEN CUPBOARD.
L	..	LAVATORY BASIN.
B	..	BATH.
S	..	SINK.
CK	..	COOKER.
DB	..	DOMESTIC BOILER.
DH	..	DELIVERY HATCH.
WB	..	WASH BOILER.
M	..	METER CUPBOARD.
RA	..	RADIATORS
BB	..	BACK TO BACK GRATE
R	..	REFUSE.



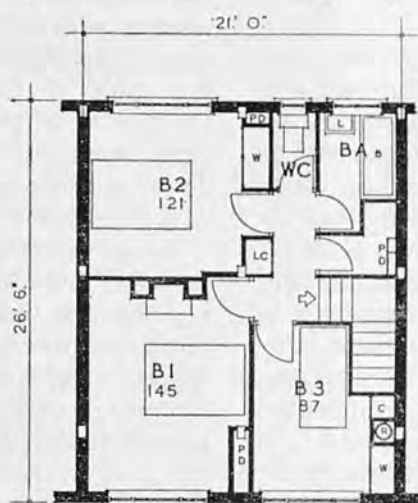
A1. AGED PERSONS
412 SQUARE FEET.



BR. SINGLE PERSONS.
298 SQUARE FEET.



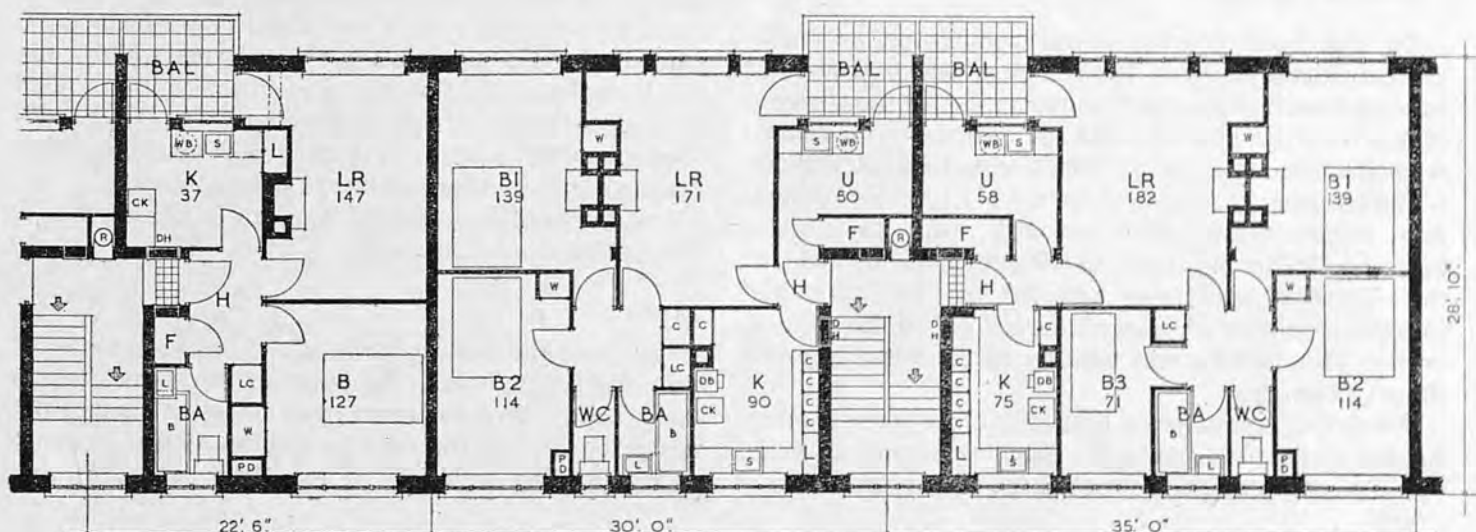
LOWER FLOOR PLAN
MAISONETTE FLATS



A3. UPPER FLOOR PLAN
MAISONETTE FLATS FOR MULTI-STOREY BLOCKS.
898 SQUARE FEET.



A1.
419 SQUARE FEET.



A1.
450 SQUARE FEET.

A2.
711 SQUARE FEET.

A3.
787 SQUARE FEET.

FLATS FOR THREE STOREY BLOCKS.

An area of 135-150 square feet is suggested for the principal bedroom, 110-134 square feet for the second, and 70-80 square feet for the third (single) bedroom.

The cumulative effect of these requirements is a recommended total floor area of 900 square feet, exclusive of outbuildings, for the normal three-bedroom non-parlour house. The report is emphatic on this point:

We are convinced . . . that no substantial reduction can be made in this figure if the majority of the defects of the inter-war house are to be remedied.

This statement must be underlined. It would manifestly be short-sighted, in planning for the future, to economise land and cut building costs by adopting standards which would condemn generations as yet unborn to live in conditions already coming to be regarded as intolerable. It is futile to reduce congestion in the layout of residential areas and retain it within the house itself, to encourage a higher standard of life and withhold the means for its attainment, to expend millions of public money on education and throw away much of the benefit by overcrowding the home of the child.

Among the Housing Director's specimen plans on Diagram 4 is a two-bedroom house with a four-bedroom parlour type alongside; the adjoining angle unit consists of two two-bedroom cottage flats, ingeniously planned to carry a terrace round a corner so as to screen off the backs of houses and combine a maximum net density with an effective architectural treatment. The remaining plans on this page are for three-bedroom houses, including one with a parlour which could be used in emergency as a fourth bedroom. It will be noted that all the plans illustrated are of the same depth, so that constructional prefabrication may be used to the full and any combination of houses and cottage flats incorporated in any layout.

It is essential that equivalent standards of accommodation should be provided in flats. As the Dudley Committee states:

In many blocks of flats built between the wars the rooms have often been smaller than those of contemporary houses. In our opinion this is most undesirable, and we recommend that the areas of rooms which we have specified for houses shall always be observed in flats.

On this basis only can a true comparison be made between houses and flats. In addition an adequate private balcony is necessary as part compensation for the absence of a private garden; it should open off the living-room. A smaller balcony opening off the kitchen is also desirable.

The Housing Director's plans for old people's cottage flats, single persons' flats and one-, two- and three-bedroom flats are illustrated on Diagram 5, together with a three-bedroom maisonette designed for framed multi-storey construction. A single-bedroom flat for the ground or top floor (with access balcony in the latter case) is shown alongside.

Where single persons are housed in a hostel the Dudley Report recommends that the building should contain sleeping accommodation for each sex in a separate wing,

with communal living-rooms as in a hotel. "Units of this kind, housing as many as 500 persons, have proved successful," it observes. Of self-contained dwellings for single people it says:

We should like to see more of this type of accommodation provided by local authorities. The need is particularly acute in the case of single women, who much prefer a home of their own to the best of lodgings.

OUTDOOR SPACE

From a utilitarian point of view the simplest and cheapest way of treating space between dwellings in the redevelopment areas would be to concrete their forecourts and back yards, renouncing all hope of enlivening their arid monotony with the fresh colours of grass and flowers or softening their stark lines with the varied forms of trees and shrubs. But such false economy would make a mockery of all our plans to improve the internal design of dwellings and to develop our civic amenities. It could not be contemplated by anyone who had seen for himself what it would mean in terms of the sacrifice of human values. The photographs of old houses on Plate 8 show the results of this kind of "economy". These scenes are typical of many Manchester districts, where front doors open directly on to bare, drab streets and back doors on to mean and airless yards, where front windows lack privacy and rear windows are in perpetual shadow.

A thorough inspection of housing conditions in various parts of Manchester will convince any unprejudiced observer that there is a definite point beyond which any further narrowing of the space between two-storey houses begins to result in a loss of essential amenities out of all proportion to the amount of land saved, and that this point is reached where parallel rows of houses stand about 70 feet apart. (This, incidentally, is the minimum distance recommended by the Tudor Walters Report of 1918.) It will be found that where the interval exceeds this figure gardens tend to be well kept and rooms bright and clean; where it is appreciably smaller there is a marked falling-off in cheerfulness within and tidiness without. A few feet either way can make all the difference between a sense of seclusion and a feeling of closeness, between a general desire to make the best of lawns and flower beds and a general conviction that the effort is not worth while. It has also been found that this distance will suffice to secure an adequate standard of natural illumination in the ground-floor rooms of houses with sloping roofs, and that closer spacing results in a marked loss of winter sunshine.

The corresponding interval between blocks of flats is about three times their height.

GARDENS

The front and back gardens of a dwelling-house serve quite distinct purposes. The back garden is essentially a part of the dwelling—a private open-air room. But the front garden belongs to the road as well as to the building; while affording seclusion to the latter it should also

enhance the general appearance of the former. In the past this larger function of the front garden has been too often lost to sight. High wooden fences, brick walls topped by spiked iron railings and tall hedges have destroyed all sense of unity, created an unsociable atmosphere, and deprived the road of its potential attractiveness without significantly adding to the privacy secured by an adequate distance between pavement and buildings. If front gardens were bounded only by dwarf hedges it would not be long before householders came to appreciate their value as elements in a collective design embracing houses, flower-beds, lawns, shrubs, pavements, roadside trees, verges and carriageway.

The back garden is a different matter. Here privacy and protection for personal belongings should be the primary considerations; here the taste of the individual householder should find full and free expression. Our social survey showed that nearly three-quarters of the people who expressed a wish to move from the inner city areas gave as a reason their desire for gardens of their own. It is important, however, that the less enthusiastic cultivators should not be discouraged by a lack of fencing or a litter of building refuse, for the occasional unkempt garden is a conspicuous eyesore and a source of trouble in neighbouring plots.

A small paved area is needed at the back of each house

in addition to space for grass and flowers. There must also be room for an outbuilding if no separate utility room is provided indoors. These necessities cannot satisfactorily be accommodated in a back garden much less than 90 square yards in overall extent, which is the maximum that can be realised if its length is limited to 35 feet.

Similar considerations apply to the communal grounds to be provided around blocks of flats. An examination of recent examples has shown that where flats are built at densities ranging from 36 to 50 per acre the small grassed areas left between the blocks and the necessary approach roads are often spoiled by excessive use. The provision of nearby playing-fields and children's playparks will doubtless help to remedy this, but even where such facilities exist the area of communal lawns and gardens must be related to the number of people for whom they are provided if they are to be maintained in a proper condition to serve their purpose. Here again it has been found that any reduction in the space between buildings below the minimum required to enable their grounds to be well kept will also result in a growing sense of oppressive closeness, and that the point at which the loss of external amenity becomes apparent is also approximately the point at which a marked deterioration in standards of internal daylighting and sunshine penetration begins.

SCHOOLS

The Education Act of 1944, designed "to ensure a fuller measure of education and opportunity for young people and to provide means for all of enriching the inheritance of the country whose citizens they are", has been used as a basis for calculating the school requirements which must be met in the Manchester of to-morrow.

The provisions of this Act compel the allocation of much more land to school use in the planning of residential areas. In the case of existing school buildings which are good enough to be worth keeping, playing-fields must be enlarged to conform with the required standard.

Manchester has earned a high reputation for pioneer work in education. Nevertheless, many of its schools are unsatisfactory, even by pre-war standards. A complete record of all municipal and church schools has been made, including information as to type, capacity, age of buildings and the number of children on the register in 1943. This survey reveals at a glance the condition of the schools in any district and shows up clearly the defects in their present siting. For instance, a number of infant and junior schools, including some of fairly recent construction, stand on busy main highways; consequently many young scholars have to cross a heavy traffic stream several times a day and traffic noises cannot be excluded from the classrooms. Again, in some areas school accommodation is in excess of actual requirements, because the population has shifted or declined, whereas in others it is deficient.

Redevelopment, involving the dispersal of people from congested residential areas, is bound to cause some further

redundancy in the inner districts and to accentuate deficiencies elsewhere. The programme of school construction and maintenance must therefore be planned in conjunction with the redevelopment programme. Some of the schools to be retained in the ultimate scheme may have to use sites in neighbouring clearance areas as temporary playgrounds until their immediate surroundings can be cleared. In many districts all existing schools are badly sited in relation to the houses they will have to serve, so that although the buildings may reach the standard required by the Ministry of Education, and must therefore continue in use for a number of years, more satisfactory sites will have to be reserved for future rebuilding.

Primary education for children aged from two to 11 is to be provided in nursery schools or classes and in infant and junior schools. Nursery schools should accommodate 40 children each; for the convenience of parents they should be centrally situated within each residential group in the neighbourhood, so that the distance from home to school will be short. Adequate sites for infant and junior schools should be included within each neighbourhood to ensure that no child under 11 need cross a main road on his way to school.

For the purposes of the Plan the prospective attendance at secondary schools in the future has been estimated as follows:

Modern	..	72 per cent
Grammar	..	13 "
Technical	..	15 "

Grammar and technical schools and county colleges for further education have, as far as possible, been sited in composite groups, so that if experience belies present expectations in regard to the relative demand for each type of secondary school the site boundaries between them can be adjusted accordingly.

In assessing the areas required for future schools the first step is to estimate the number of children per 10,000 of the future population in each community. For this purpose it is not sufficient to determine the proportion of the total present population represented by school children and then to reserve such areas in each community as

would be required by that proportion of its estimated total future population. In the first place, the ratio of children to adults is declining. In the second place, the birth rate (and consequently the proportion of school children) varies remarkably as between different parts of the city. The proportion of Roman Catholic pupils in different areas also varies.

Each of these points has been considered in assessing the number and sizes of the sites to be reserved for schools in new development and redevelopment areas, as shown in Tables 6 and 7 below.

Table 6 SCHOOL REQUIREMENTS—NEW DEVELOPMENT

Type of school	Number proposed	Population served	Form-entries	Number of age-classes	Number of scholars per school	Total number of scholars	Building area and surrounds per school (acres)	Playing areas per school (acres)	Total area for schools (acres)	Total area per 10,000 of the population (acres)
Neighbourhood schools										
Nursery	5	10,000	—	3	40	200	0.33	—	1.66	—
Infant	2	10,000	2	2	160	320	1.50	—	3.00	—
Junior	2	10,000	2	4	320	640	2.00	3.25	10.50	—
									15.16	15.16
District schools										
Modern	14	130,000	3	5	450	6,300	3.00	14.00	238.00	18.30
Grammar (including advanced education)	1	50,000	3	7	550	550	3.50	17.00	20.50	4.10
Technical (including advanced education and Roman Catholics)	2	70,000	3	7	550	1,100	3.50	17.00	41.00	5.86
County college	1	60,000	6	2	900	900	2.00	10.50	12.50	2.08
Roman Catholic schools										
Infant	1	20,000	2	2	160	160	1.50	—	1.50	0.75
Junior	1	20,000	2	4	320	320	2.00	3.25	5.25	2.62
Modern	1	30,000	3	5	450	450	3.00	14.00	17.00	5.66
Grammar	1	180,000	3	7	550	550	3.50	17.00	20.50	1.14
										55.67

NOTE.—Plate 10, facing page 17, illustrates the grouping of schools within a theoretical neighbourhood of 10,000 persons in new development and the number of neighbourhoods which each type of secondary school would be expected to serve.

Table 7 SCHOOL REQUIREMENTS—REDEVELOPMENT

Type of school	Number proposed	Population served	Form-entries	Number of age-classes	Number of scholars per school	Total number of scholars	Building* area and surrounds per school (acres)	Playing* areas per school (acres)	Total area for schools (acres)	Total area per 10,000 of the population (acres)
Neighbourhood schools										
Nursery	4	10,000	—	3	40	160	0.33	—	1.33	—
Infant	1	10,000	3	2	240	240	2.00	—	2.00	—
Junior	1	10,000	3	4	480	480	1.80	2.70	4.50	—
									7.83	7.83
District schools										
Modern	4	50,000	3	5	450	1,800	2.80	7.70	42.00	8.40
Grammar (including advanced education)	1	70,000	3	7	550	550	3.00	9.50	12.50	1.80
Technical (including advanced education and Roman Catholics)	1	50,000	3	7	550	550	3.00	9.50	12.50	2.50
County college	1	80,000	6	2	900	900	1.80	5.70	7.50	0.94
Roman Catholic schools										
Infant	3	80,000	2	2	160	480	1.50	—	4.50	0.56
Junior	3	80,000	2	4	320	960	1.80	1.70	10.50	1.31
Modern	1	40,000	3	5	450	450	2.80	7.70	10.50	2.62
Grammar	1	220,000	3	7	550	550	3.00	9.50	12.50	0.57
										26.53

* In redevelopment a reduction has been made in the allowances for playing-fields and surrounds to the buildings.

It has been assumed throughout that the Roman Catholic Church will desire to provide its own schools, with the possible exceptions of technical schools and county

colleges, and its requirements have been assessed accordingly. Other voluntary schools, existing or new, would reduce the provision to be made by the education authority.

THE NEIGHBOURHOOD

The function of the neighbourhood is to supply the immediate needs of everyday living. The more self-contained its structure, the greater will be its power to induce a sense of local patriotism and an interest in community life.

The ideal size for a neighbourhood has been the subject of considerable research, the results of which point to a population of about 10,000 as the most suitable unit. Such a community can maintain its own nursery, infant and junior schools; it justifies the provision of a health sub-centre and a branch library; it is acceptable for church purposes; it will support a sufficient number of local shops to secure competition in the principal trades; finally, its requirements in respect of open space, organised games and ornamental gardens are on a scale that is adequate for economical administration and upkeep. It is indeed surprising to find one population figure so neatly adapted to so many purposes. The ideal structure of a neighbourhood has accordingly been worked out on this basis.

A real community spirit still survives in the English village—in the companionship of the pub, in week-end cricket on the green, and in the various activities of village organisations. The neighbourhood unit is a modern urbanised version of the traditional village, and the counterpart of the village green is the neighbourhood centre, incorporating the community centre, local shops, churches and public houses, a branch library and a health sub-centre. In due course the neighbourhood centre will become the natural meeting-place for the local population; combined with the advantages which city life has to offer, it should enable the urban neighbourhood to reach a higher cultural level than is attainable in the rural village.

THE COMMUNITY CENTRE

Of the group of buildings forming the neighbourhood centre by far the most significant socially will be the community centre. This must be designed as a real people's club, catering for all who live in the neighbourhood and satisfying their common needs in the way of recreation, informal social intercourse, free discussion, education (both academic and practical) and physical culture. The first requirements are a canteen with adequate kitchen equipment, a large hall with a seating capacity of approximately 500, and two or three smaller rooms in which the sectional activities of the centre can germinate and develop. Further facilities should be added in response to the demands and endeavours of the neighbourhood, so that the centre may grow as a healthy living organism expressing the desires and aspirations of the people to whom it belongs. These might ultimately include full provision for music, drama and lectures, a gymnasium

and plunge bath (unless these were available in a nearby modern school), indoor games rooms, small lecture rooms, arts and crafts rooms, reading and writing rooms, and possibly a restaurant service—similar in scope to that of the war-time British Restaurant—which would give the housewife some relief from daily domestic drudgery and make it easier for whole families to play their full part in communal activities.

The community centre should also accommodate a young people's club similar in scale and equipment to the adult section. Arrangements for bringing people of all ages together on occasion would ensure a gradual transfer of interests during the years of adolescence.

Everything should be done to enhance the attractiveness and scope of the community centre. To this end it is desirable that the neighbourhood branch library should be linked with it so that each may assist the other to fulfil its particular function. The club rooms of the community centre will undoubtedly be more freely used if books can be borrowed from the branch library under the same roof.

The whole layout should be so arranged that development may proceed in stages in response to the demand for increased accommodation.

SHOPS

Accessibility and ease of distribution are the chief considerations in the siting of local shops, which should be grouped at such intervals that only short journeys have to be made. The neighbourhood shopping centre is designed to supply only the local demand for food and the minor personal needs of everyday life. It should, however, be planned to facilitate rather than to restrict the legitimate expansion of retail businesses by placing at their disposal reservations of adequate size.

An analysis of the present distribution of shops shows that there is a general and substantial over-provision, largely due to the haphazard conversion of single dwellings in the older areas. Many existing shops cannot be economically replaced as redevelopment becomes necessary; they are not paying their way now, and certainly could not produce an adequate return on the cost of new buildings of modern design incorporating up-to-date trade facilities. In some areas of new development, however, shops are too few and shopping centres too far apart.

Another outstanding defect of many housing estates before the war was that their new churches, frequently excellent in individual design, were erected on confined sites which left little room for appropriate settings. The neighbourhood's churches should be its spiritual and architectural focal points, and sites in keeping with their significance should be reserved in new development.

In redevelopment the more important churches will, no doubt, be retained, but there will obviously be some redundancy where the population is reduced. The desirability of reserving land for church halls and for such youth organisations as the Lads' Brigades, Boy Scouts and Girl Guides must also be borne in mind.

It is suggested that neighbourhood public houses should be of the smaller and cosier type, with probably one or two medium-sized houses at the neighbourhood centre. Thus there would be a choice of houses within convenient reach of all parts of each neighbourhood.

The standard requirements of a neighbourhood, together with the acreage they should occupy, are listed in Table 11, on page 32.

Important as it is to make the full standard provisions in each neighbourhood, it is infinitely more important to ensure that these provisions are so disposed as to give real meaning to community life, which is the aim of all neighbourhood planning. To illustrate the practical application of the neighbourhood principle in new development and in redevelopment areas we have selected the north-western neighbourhood at Wythenshawe (where sites have already been prepared for the first year's housing programme) and the Miles Platting neighbourhood, which lies in a congested area scheduled for early redevelopment.

THE NORTH-WESTERN NEIGHBOURHOOD

Wythenshawe was the first example in this country of a municipally owned satellite, as distinct from a garden city, and is regarded as an outstanding instance of civic initiative and achievement. Nevertheless that part of the estate which is already developed suffers from a number of the defects characteristic of the average new dormitory suburb. Like most large housing estates it has a somewhat anaemic social atmosphere—a lack of robust community life—attributable in part to its newness, but more particularly to the absence of good communal facilities. Responsible local residents have complained with justice of the lack of libraries, cinemas, dance-halls and other social necessities, of the inadequacy or inconvenience of the shops and the health services, and of the paucity of schools in view of the predominance of young families.

The deficiencies of such pre-war development in the northern part of the proposed north-western neighbourhood must be taken into account in the detailed planning of the rest. Unfortunately, therefore, this first application of the neighbourhood principle in the Manchester region will not embody an ideal layout.

The boundaries of the neighbourhood are formed by four major traffic roads: Princess Parkway extension to the east, two new roads of modified parkway type to the south and west and the existing Altrincham-Stockport road to the north (see Plate 11, facing page 26). The principal roads within the neighbourhood are designed for purely local traffic, including public transport vehicles; they are, therefore, planned in such a manner as to discourage through traffic. It should be noted that no road

access is provided from the neighbourhood to Princess Parkway and that only three connections are made with the new major local roads; this will reduce the likelihood of accidents and ease the flow of traffic on these roads.

The neighbourhood is divided into two sections by the Cheshire Lines Railway. The northern section is linked to the remainder of the unit by the proposed widening of Hall Lane southwards to the neighbourhood centre. A further pedestrian link from the Royal Oak Estate is proposed by way of a footbridge over the Cheshire Lines Railway, at the western boundary of the Royal Oak School, to connect with the field-path system to the south of the railway.

DETAILED LAYOUT

For the neighbourhood centre, as the focal point of the area, a naturally dominating position on the high ground at present occupied by Baguley Hall Farm has been selected. Baguley Hall, one of Cheshire's many interesting old mansions, has been incorporated in the centre within a spacious surround so as to avoid the incongruity of a modern setting. The community centre and branch library adjoin the hall, while to the east stands the modern school, with a site of 17 acres, on high ground giving fine views across Princess Parkway towards Benchill and the civic centre. The neighbourhood facilities, comprising some 20 shops, with a health sub-centre and a public house alongside, face the community centre. A sub-centre of 11 shops already exists in the Royal Oak Estate north of the railway. In addition, it is suggested that three subsidiary groups, each comprising four shops, should be distributed on the principal neighbourhood roads so as to give the surrounding householders convenient facilities for small local purchases.

Sites for churches and an additional public house are reserved. A church standing on high ground at the southern end of Hall Lane, the principal approach road from Wythenshawe Park, will form an effective terminal feature.

SCHOOLS AND OPEN SPACE

In addition to the modern school and the existing Royal Oak infant and junior schools north of the railway, it is proposed to erect another infant school and another junior school on a site of 7½ acres in the heart of the new development south of the railway. Younger children will thus go to and from school in safety, without having to cross main traffic roads or, in most cases, even principal neighbourhood roads. Six sites for future nursery schools are planned, one for each group of dwellings, so that the maximum distance from home to these schools will be approximately a quarter of a mile.

Two sites south of the railway, with a total area of 3.27 acres, are set aside for children's playparks and connected by the field-path system. For the area north of the railway it is suggested that a part of the Royal Oak School grounds might be allocated for use as a children's playpark when the new schools have been provided.

A stretch of 17.66 acres of level land adjoining Wythen-

shawe Park is reserved for playing-fields. A further 14 acres north of Baguley Sanatorium would meet the need for organised games among the population south of the railway. A total of 7.92 acres of land adjoining the railway is provided for allotments. Only one ornamental park of 4.97 acres is proposed in view of the proximity of Wythenshaw Park.

The disagreeable effect of crowded or continuous development has been avoided by a judicious use of open space. Great care has been taken to secure the most pleasing landscape effects by preserving existing features and trees wherever possible. School playing-fields, ornamental parks and spinneys are linked by a system of field paths giving a series of attractive pedestrian ways through the neighbourhood and offering wide scope for the planting of suitable trees and shrubs. The field paths also give access to shops, community buildings and schools; they form part of a complete network covering the whole of Wythenshaw.

HOUSING

The residential development can be divided into four parts: the existing Royal Oak Estate of 860 houses; the Spinney Estate and the area bounded by Baguley Hall, Hall Lane, the railway, Blackcarr Wood and the modern school, comprising 29 acres, both reserved for low-density development; and finally the remainder of the neighbourhood unit, containing 175 acres.

The layout provides for houses in terraces with open courts and other special features. The old people's cottage flats, close to the neighbourhood centre, form a pleasing open court with access to the adjoining rest park and to the field-path system. The two single persons' blocks have pleasant settings and the other flats are on rising ground, which is particularly suited to this form of housing.

The areas allocated for various purposes are set out below:

Table 8

Use	Number	Acres
<i>Neighbourhood centre:</i>		
Community centre and library (including Baguley Hall)	1	4.37
Health sub-centre	1	1.79
Shops	20	2.94
<i>Other requirements:</i>		
Churches, halls, etc.	6	10.31
Public houses	3	3.89
Shops	23	2.20
Dwellings	2,675	222.63
Nursery schools	6	2.2
Infant schools	2	13.87
Junior schools	2	
Children's playparks	2	3.27
Organised games (17.66 acres provided near Wythenshaw Park and 14 acres north of Baguley Sanatorium)	—	—
Ornamental gardens and walkways	—	13.52
Allotments	—	7.92
Minor parkways	—	11.61
<i>District requirements:</i>		
Modern school	1	17.48
Total acreage (excluding railway)		318.00

MILES PLATTING

Redevelopment before the war was a piecemeal, hand-to-mouth process. Isolated patches of slum property were demolished and replaced by blocks of flats without reference to any general plan. After the war it will still be necessary to redevelop each built-up neighbourhood stage by stage, but if each stage conforms to a comprehensive scheme the layout of the whole will gradually undergo a complete transformation. Plates 12 and 13 show how this process of stage redevelopment might work in the case of the Miles Platting neighbourhood.

Among the factors governing the layout of such an area are the routes of existing sewers, water, gas and electricity mains, and the age and present use of existing buildings. The main objectives of neighbourhood planning must be secured in a way which takes account of the practical difficulties presented by previous development.

PRESENT CONDITIONS

Detailed surveys of all existing properties in the area make it possible to assess the probable "life" of industrial premises, the suitability of school sites and buildings, the architectural value of churches and the importance of shopping centres.

Plate 12 (top) shows the varying use of property in the area. The most significant feature is the extent to which industry, mainly housed in inferior buildings, has developed in ribbon formation along the canals. Within the limits of the neighbourhood to-day there are 4,796 houses, 146 flats, 451 shops, 52 public houses, 18 off-licences, 191 industrial and commercial buildings, two cinemas, eight churches, five Sunday schools, seven schools, six clubs and institutions, 9.8 acres of public open space, and 27.45 acres of cleared sites.

Most of the houses are over 75 years old. Most of the remainder were built between 1870 and 1889. In general these dwellings are of very poor quality—obsolete, unhealthy and built at excessively high densities. Nearly all the industrial premises were likewise built before 1870. Conspicuous among the remarkably few buildings erected since 1910 are the corporation's new flats adjoining Mellor Street and Naylor Street.

REDEVELOPMENT BY STAGES

Opposite these flats are sites on which foundations for more flats have already been constructed. Flats are also projected on the site of the present recreation ground between Canal Street and Iron Street. This, too, is in corporation ownership; during the war it has been put to uses which have made it unsuitable for recreational purposes.

Thus during the **First Stage** of redevelopment sites now vacant will be used to provide as much accommodation as possible for the people who will be displaced by the demolition of the houses in the clearance area bounded roughly by Butler Street, Bradford Road, Varley Street and Holland Street. The reconstruction of this area will constitute the **Second Stage** of redevelopment (see Plate

12). Its existing mixture of industrial premises, shops (mainly of the converted dwelling-house type) and public houses will give place for the most part to new houses, with some special accommodation for elderly people.

During this stage the nucleus of the neighbourhood centre should be erected, consisting of a main group of 30 shops (with space for expansion), a community centre, a health sub-centre, a branch library and a public house, sited at the focal point of five neighbourhood roads—Naylor Street, Varley Street, Canal Street, Stracey Street and Ridgeway Street. Sites for two children's playparks will also become available to replace the recreation ground taken over in the first stage.

The Nelson Street County School, at the junction of Nelson Street and Thomas Street, should have its playing-field area extended for temporary use while the school continues to function on its present site.

The area to be tackled in the **Third Stage** of redevelopment, bounded broadly by Oldham Road, Hulme Hall Lane, Rochdale Canal and Naylor Street, comprises a mixture of residential property and industrial buildings, together with three churches, three schools, three Sunday schools, one small cinema and various clubs and institutions. Sufficient land would by this time be available to accommodate the proposed Roman Catholic infant and junior school at Corpus Christi. The modern school could be constructed and a proportion of its playing-fields laid out, although the rest of the playing-field space would not be available until later.

Nearly all the new dwellings in this section should be houses, with a few cottage flats and a certain amount of special accommodation for elderly people. A small subsidiary shopping centre should be provided, together with a public house and nursery school, to serve the people on this side of the neighbourhood.

By this time the clearance of property south-east of Oldham Road from Butler Street to Hulme Hall Lane would be complete, enabling Oldham Road to be widened, with dual carriageways and a central reservation when the increase in traffic makes them necessary.

Stage Four (the redevelopment of the small area of comparatively good residential property between Bradford Road and Hulme Hall Lane) cannot be carried out until some years after the completion of the first three stages. The area contains several shops and public houses and two nonconformist churches, one of which it should be possible to retain until the last stage. The residential development proposed is in the form of houses, except for a few cottage flats and a multi-storey block of flats on Varley Street. A fairly large piece of land by Hulme Hall Lane, reserved in the final scheme for the Intermediate Ring Road parkway, will become available at this stage; it could, if necessary, be used for temporary housing in order to relieve any overspill problem that may arise at that time.

The **Fifth Stage** of redevelopment is the removal (when they become obsolete) of the industrial premises flanking the two canals. It is suggested that these sites should be mainly devoted to allotments and organised games (including part of the modern-school playing-fields) so that the industrial buildings may be allowed to work out their useful life. This arrangement will mean that some of the neighbourhood amenities will not be available for a number of years. It has, however, the advantage of permitting the maximum residential development in the earlier stages, when the overspill problem will be most acute. The Rochdale Canal is not now used for navigation; it can be filled in if a pipe is laid of adequate diameter to maintain supplies to the owners of water rights.

The final layout, as shown on Plate 13, is essentially a compromise between the ideal and the limitations imposed by the site. Although a number of redundant side streets have been eliminated, the main network is retained as far as possible, in order to avoid building over service mains and to minimise the amount of disturbance and the costs of reconstruction. Existing sewers and electricity and gas mains would thus be available for use without further adaptation.

Access from the main peripheral roads is provided at six points; each of the entry roads already exists, and the present canal bridges are incorporated in the scheme.

THE DISTRICT

A district is formed by the grouping together of several neighbourhoods to form a composite whole. Five neighbourhoods, housing approximately 50,000 persons, make up a suitable unit. The district loses in compactness if the number is larger, while it is doubtful whether a much smaller population could satisfactorily support the wide range of amenities required. These are: a district hall, a main health centre, public baths, a main library, cinemas, large shops, large public houses, residential hotels, and police and fire stations.

Detailed plans for each neighbourhood must conform with the overall plan for the district, which in turn dovetails into the broad outline scheme for the city. Each district, however, must be planned as a complete unit, with a road network for the circulation of public transport

interconnecting its component neighbourhoods. Just as the neighbourhood's roads and the grouping of its dwellings lead to the neighbourhood centre, so the district road system should converge on the district centre. Secondary schools and county colleges, which cannot be provided in every neighbourhood, are distributed over the larger unit of the district. The open spaces, shops and amenities contained within the district should make it more self-sufficient than the neighbourhood.

Where the shape of the district necessitates some dispersal of suburban shopping and entertainment facilities for the greater convenience of the more distant neighbourhoods, an appropriate neighbourhood centre can be enlarged to form a district sub-centre. For example, two sub-centres are proposed in the Ancoats district, one

serving the Newton Heath and Brookdale areas and the other the Beswick and Clayton areas.

THE DISTRICT CENTRE

The typical district hall will incorporate a large public assembly room suitable for dramatic entertainments, concerts or public meetings, and separate reception rooms for district functions. Improved education may be expected to encourage a revival of the legitimate stage, and it may well be found necessary to establish repertory theatres in some district centres: one company might well serve two or three districts. The district centre should also include a main library (incorporating a reference section), a main health centre and large public baths. The public buildings should be grouped around a central green in a setting worthy of the architectural distinction they should obviously possess. In practice the exact location of the district fire and police stations must, of course, depend on service requirements, but in district centres they would at least have the advantage of planned access to all parts of the district. The grouping of two or three cinemas in the district centre offers a choice of programmes and increases the drawing-power of the centre as a whole.

Shopping facilities will be more comprehensive than those provided in the neighbourhood centres; they will include the more specialised suburban food shops together with drapery, furnishing, hardware, clothing, tailoring and similar establishments laid out in compact groups. As compared with the typical shopping street of to-day, with shops strung out for half a mile or more along a main traffic artery, this arrangement has obvious advantages from the standpoint alike of the shoppers' safety and convenience, of the tradesmen's prosperity and of the centre's social function as a district meeting-place.

Office accommodation will undoubtedly be required; the upper floors of shops will suit the district's commercial needs. In addition, garage repair shops, petrol filling stations and adequate car-parking facilities should be provided in each centre.

MOSS SIDE

Plate 14 illustrates the replanning of part of Manchester's congested inner belt as a residential district. The area shown covers 780 acres with a present population of 84,000.

Hulme and Chorlton-on-Medlock, in the north and centre of the Moss Side district, were built almost wholly before 1870 and constitute typical examples of Victorian working-class housing. Before the war a limited amount of clearance had taken place and a great deal more was overdue; the war has prolonged by over five years the life of property which was already unsound in structure and in urgent need of replacement.

Moss Side, Brookes Bar and Old Trafford (part of Stretford), in the south and west of the district, were built for the most part between 1870 and 1890. Houses and other buildings, although showing a marked improvement on the standards of the earlier period, are still laid out to

a cramped and dreary grid-iron pattern in monotonous streets of tunnel-back dwellings.

The district has only $11\frac{1}{2}$ acres of open space—an average of one acre per 7,000 people. No less than 204 manufacturing concerns are established in the area, the majority in small, obsolete premises. The existing schools are mainly old buildings of several storeys occupying small confined sites, but a few of the district's churches, chapels, mission halls and Sunday schools have a local importance and an architectural quality that warrant their retention. In the older areas small-scale trading used to be the general rule. To take a specific example, Stretford Road has for generations been lined with small shops which since the advent of the multiple store have lost much of their original character and vitality. Many are now redundant; some are closed, with little prospect of re-opening, while others maintain a most precarious existence.

Hulme itself suffered more than other residential areas in the air raids of 1940-41, but the damage is widely dispersed and not in itself sufficient to permit early redevelopment without further demolitions.

The presence of a considerable number of main sewers and other services adds substantially to the difficulties of preparing a satisfactory layout; streets containing such services have been retained.

SUGGESTED LAYOUT

The district centre (planned by the City Architect) is sited near the junction of the Princess Parkway extension with the Inner Ring Road and will incorporate the main public buildings—a district hall, a community centre to serve Moss Side East and Moss Side West, a main health centre, a district library, public baths and eventually fire and police stations. Two cinemas combine with the main district shops to form rectangular groups, with garages and parking facilities in the enclosed courtyards. Sites are also reserved for public houses and petrol filling stations. The whole centre, dominated by the Church of St. Mary, with its impressive spire, is laid out with planted squares to form an attractive meeting-place for the population of the district.

Opposite the district centre, screened on one side by Princess Parkway and on another by school playing-fields, will lie a local industrial zone designed to accommodate the domestic industries (such as bakeries, laundries, etc.) required to serve the needs of the surrounding community.

A feature of the layout is the internal road system which links each neighbourhood with the district centre. The main internal roads will be used by the local transport vehicles serving the district—as distinct from the general transport services communicating with the rest of the city, which will follow the major highways. They are planned to pass over the major highways by bridges when these are necessitated by the increase in major-highway traffic.

The Moss Side district is exceptional in that several of its neighbourhoods will be small. Part of the Medlock neighbourhood adjoining the proposed cultural centre (see Part VII) is reserved for low-density housing.

HOW MUCH SPACE is required to house the future population of Manchester in healthy and agreeable conditions? The answer to this question is the key to the whole Plan, for it must determine how many of our future citizens can at any stage of redevelopment be accommodated within the city's present boundaries, and how many will have to be rehoused elsewhere.

First we must ascertain how many dwellings of each type (together with the requisite garden space and service roads) can be built on an average acre of land. Here we have to reconcile two distinct purposes. On the one hand we must see to it that all families, even in the areas nearest to the city centre, have dwellings which are sufficiently roomy and well spaced to afford healthy and pleasant living conditions; and this will entail a drastic thinning-out of our congested residential districts. At the same time we must keep the resultant overspill within manageable bounds and avoid causing needless hardship to people who dislike being uprooted from familiar surroundings.

DENSITY

Before proceeding further it will be advisable to define the terms used. Housing densities may be expressed in terms of dwellings per acre or of persons per acre. The former is clearly the more significant unit if densities are to be calculated by reference to physical needs. The latter must be purely arbitrary unless it is related to the actual or estimated number of persons in the average household at the time and place in question. An assumption that every dwelling will always be filled to capacity encourages over-optimistic delusions about the number of people who can be decently accommodated on an acre of ground.

In this book, therefore, density is reckoned in dwellings per acre. But even this use of the term may be misunderstood unless the various kinds of density are carefully distinguished.

Net Density is used to denote the number of dwellings of any particular type or types per acre of land occupied solely by such dwellings, their gardens and half the width of the roads on which they front.

Net Residential Density signifies the number of dwellings per acre of land occupied by a composite layout of all types of dwelling, including their gardens, internal roads and half the widths of the surrounding roads.

Gross Neighbourhood Density denotes the number of dwellings of all types per acre of land within a residential neighbourhood, including land occupied by such provisions as shops, schools, ornamental gardens, playing-fields, churches and public buildings, as well as land occupied by dwellings, gardens and roads.

Gross District Density means the number of dwellings of all types per acre of land within a residential district, including land occupied by the district centre and district

There is, of course, a strong temptation to serve the second purpose at the expense of the first. Our immediate problem would be greatly simplified if we were prepared to crowd most of the present inhabitants of the inner areas into unsuitable dwellings built at densities which would be far too high to yield a reasonable standard of health and comfort. But we must build no future slums. Let us by all means contrive to avoid displacing people from our congested districts on a larger scale than is strictly necessary; but if our redevelopment densities are not low enough to guarantee decent living conditions, no matter what the difficulties involved, then our Plan will be a sham, for the amenities it offers in the way of open space and other communal provisions will be bought at the expense of the health and well-being of the people who are rehoused in the redevelopment areas.

The crux of our problem, then, is to determine the maximum density at which we can build each type of dwelling without prejudicing the welfare of the occupants.

schools as well as by the constituent residential neighbourhoods.

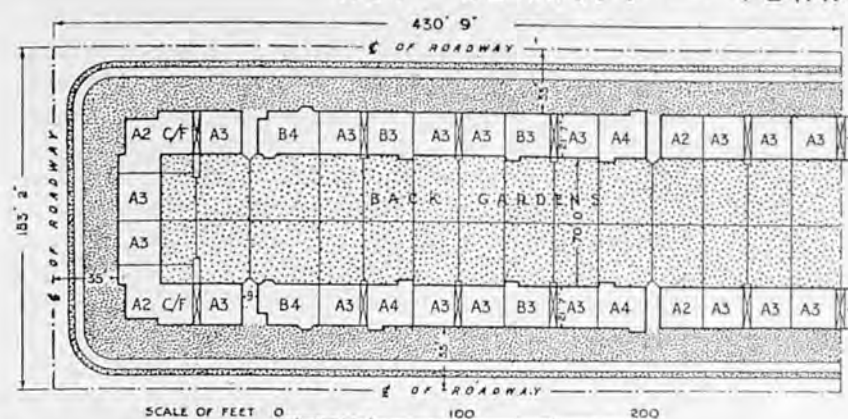
Gross Overall Density means the number of dwellings of all types per acre of land in the whole city, including land occupied by industrial and commercial premises, roads, rivers, railways, canals, hospitals, cemeteries, private open spaces and green belt, as well as by residential districts.

NET DENSITIES

Diagram 6 shows an average group of 32 two-storey dwellings of various types and sizes. Each dwelling conforms to the Housing Director's plan for its type in respect of internal accommodation (see Diagram 4), and the layout illustrated is the most compact that can be realised without sacrificing a reasonable minimum of privacy and garden space and without serious loss of winter sunshine or lowering of daylight standards. The distance between the backs of parallel rows of buildings is 70 feet, giving a back garden only 35 feet long (including the paved area) and a minimum standard of sunshine and daylight. The distance between the fronts of buildings on opposite sides of the road is also 70 feet, giving a front-garden depth (with a 35-foot road) of 17½ feet, which is just enough to afford privacy to front rooms and to make the cultivation of flowers, lawns and shrubs worth while. The total area is 1.81 acres, including half the widths of the roads. Our theoretical maximum net density for houses and cottage flats in such a combination is therefore 17.67 to the acre.

Similarly, Diagram 7 illustrates three-storey blocks each containing 24 flats with one, two and three bedrooms,

NET DENSITY — TERRACE HOUSING



TYPE	A2	A3	B3	A4	B4	NET DENSITY
HOUSES	2	18	3	3	2	17.67
COTTAGE FLATS	4	—	—	—	—	DWELLINGS PER ACRE

A = NON PARLOUR TYPE
 B = PARLOUR TYPE
 FIGURES DENOTE NUMBER OF BEDROOMS
 C/F - COTTAGE FLATS
 DISTANCE BETWEEN DWELLINGS AT FRONT AND REAR = 70'
 BREAKS BETWEEN ENDS OF TERRACES = 9'

Diagram 6

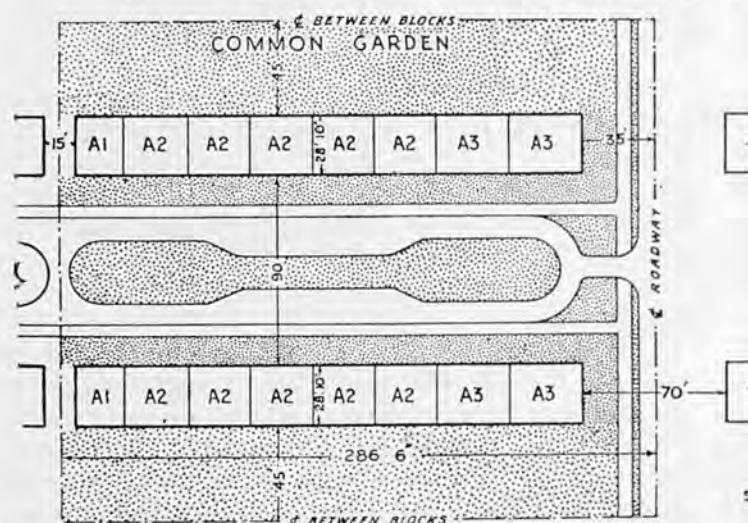
affording the minimum internal accommodation prescribed in the Housing Director's plans. The blocks are set in pairs, end to end, at right-angles to the public roads on each side of the site, with a private drive between each pair of blocks. The external allowances are half the overall height (or 15 feet) between the ends of adjacent blocks, 35 feet between the opposite ends and the centres of the flanking roads, and three times the height of the blocks between each pair. This layout will comply with the minimum daylighting standards recommended by the Lighting Committee of the Building Research Board of the Department of Scientific and Industrial Research, provided the ground-floor rooms are built at least six inches higher than the usual eight feet. Since the area covered by each block, together with its share of the surrounding grounds and roads, amounts to 0.78 acres, our theoretical maximum net density for flats in three-storey blocks works out at 30.77 to the acre.

These maximum net densities are described as theoretical because it will not always be possible—or desirable—to use such compact layouts. The fixed lines of major roads, railways and canals, and of streets covering expensive service

mains, the presence of buildings not yet ripe for demolition, and in some cases the unevenness of site levels, will in practice often make it necessary to arrange residential buildings in shorter terraces and other group formations. Experience gained in the detailed planning of the most urgent redevelopment areas suggests that, in order to secure the amenities and lighting standards afforded by the layouts illustrated, it will in practice be necessary to add such an allowance as will reduce the actual maximum net densities to 16 per acre for two-storey houses and cottage flats and 30 per acre for three-storey blocks of flats. By a similar process the practicable maximum net densities for single persons' flats and for old people's cottage flats have been worked out at 40 and 30 per acre respectively.

It must be emphasised that the densities quoted above are the highest that can be tolerated. They are expressly designed to obviate any greater displacement of persons now living in congested areas than is absolutely necessary. Where, however, a new neighbourhood is to be laid out this consideration does not arise, and if the site has a good depth of fertile soil and clumps of fine trees it would surely be criminal to obliterate all but the meagre strips and

NET DENSITY — THREE-STOREY BLOCKS OF FLATS



TYPE	A1	A2	A3	NET DENSITY
No	6	30	12	30.77
				DWELLINGS PER ACRE

A = NON PARLOUR TYPE
 FIGURES DENOTE NUMBER OF BEDROOMS
 DISTANCE BETWEEN BLOCKS AT FRONT AND REAR = THREE TIMES THE HEIGHT FROM GROUND TO THE TOP OF PARAPET
 DISTANCE BETWEEN ENDS OF BLOCKS = HALF HEIGHT = 15 FEET, INCREASED TO 70 FEET WHEN THEY ADJOIN A ROAD

Diagram 7

patches of vegetation that would result from our attempt to realise, in the redevelopment areas, the maximum density compatible with decent living conditions.

The Tudor Walters Report of 1918 recommended a net dwelling-house density of 12 to the acre, and practical experience has since confirmed that this standard should not be exceeded in any new development. In such areas the densities of other types of accommodation should, of course, be reduced to a corresponding extent from the maximum level. These normal net densities will permit a greater flexibility of layout, with a high proportion of detached houses, with building lines broken by squares, closes and quadrangles, and with trees at open corners and along the rear boundaries of gardens to screen back walls from streets and opposite windows.

Finally, special provision must be made for dwellings of a more commodious type if professional and business people are in future to make their full contribution to the social and cultural life of the city and its neighbourhood units. These dwellings will be erected partly in zones already predominantly occupied by large old houses and possessing amenities which it would be a pity to lose, partly in more or less secluded parts of each neighbourhood in new development, and partly in redevelopment areas flanking the proposed cultural centre. In such areas each detached or semi-detached house should be allowed upwards of one-sixth of an acre of ground, each block of flats should have proportionately spacious gardens, and the various other types of dwellings should be grouped round open squares or private courts of ample dimensions.

We have now to decide in what proportions the main types of dwelling should be mingled in order that each family unit may have a dwelling suited to its needs and each neighbourhood may be representative of the whole community in family structure.

FAMILY STRUCTURE

For this purpose we must carry a stage further the demographic research outlined in Part II. We can estimate approximately how many family units Manchester will have to accommodate, and what proportion of them will come within each size-group, at various future periods; but it would not do to provide the same kind of accommodation for every household of the same size. For example, the needs of a unit consisting of three unmarried adults differ radically from those of a young married couple with a baby, or of a widow with two children.

It is obvious that the family structure of our population must be changing just as rapidly as the size of the family unit. The declining birth rate, for instance, must mean that there are fewer children than there used to be in the average household of any particular size, and that there will be fewer still. Unfortunately the national census figures do not contain the necessary information from which to obtain trends that would serve as an indication of future changes in the composition of family units. But it was

possible to make from the billeting survey of 1944 an adequate approximation for the year 1961 (about half-way through the period during which the bulk of our residential redevelopment programme must be carried out) by adjusting the 1944 family structure in the light of the anticipated effects of birth rate and mortality trends on the 1961 proportions of various combinations of adults and children.

In one respect, however, this picture was inadequate, for the billeting survey did not record the ages of adults. This information is necessary because a newly married couple should have a house with room for children, while elderly parents whose children have formed households of their own will often prefer flats. The only source from which we could obtain a further sub-division of family units by age-groups was our social survey.

The individual groups identified by this final sub-division could now be reassembled into categories according to the nature and scale of their characteristic housing needs. In defining these categories the corporation's decision, in principle, that all families with children under 14 should have dwelling-houses has been taken as the starting-point. Further, it has been accepted that childless married couples in the lower age-groups should be accommodated mainly in houses; that parents with children over 14 should have houses, cottage flats or flats; that elderly couples without children will increasingly prefer flats or old people's cottages; that widows, especially those with one or two young children, will generally like cottage flats; and that single persons not in lodgings, widows with older children, and other adult family units will predominantly want to live in flats or maisonettes.

It will be observed that the characteristic requirements of all groups of family units, with the exception of the family with young children, can be met by more than one type of accommodation. In most groups, of course, there is a general preference for houses; but during the early stages of redevelopment, in order to keep the overspill problem within manageable bounds, it will be necessary to restrict the proportion of houses to be provided for families without young children.

DEVELOPMENT STANDARDS

It is accordingly proposed that the various types of dwelling should be mingled in different proportions (as set out in Table 9 below), in each of four different types of residential area: namely, the inner redevelopment area within the Intermediate Ring Road; the outer redevelopment areas; areas of new development (such as Wythenshawe); and certain special zones reserved for open development.

The "maximum" standard of development, to be applied in the inner area, is designed to enable as many as possible of its present inhabitants to be rehoused on the site. The "close" standard, to be applied in the remaining built-up areas, will make a somewhat more generous concession to the widespread preference for houses among people whose needs could as well be met by other forms

of dwelling. The "normal" standard, for new development, will afford dwelling-house accommodation for all who are likely to want it, and the "open" standard will meet the requirements of the professional and business people whom we hope to attract into selected zones and parts of each neighbourhood in new development.

Table 9

Type of dwelling	"Maximum" %	"Close" %	"Normal" %	"Open" %
Houses	64.21	71.48	80.72	82.58
Cottage flats	7.69	7.63	7.61	—
Flats and maisonettes	23.27	16.06	7.18	13.58
Single persons' flats	4.09	4.09	3.75	3.84
Old people's cottages	0.74	0.74	0.74	—

It will be apparent from these figures that the restrictions imposed on choice of dwelling, even in neighbourhoods developed at the "maximum" standard, will by no means be severe. Not only will dwelling-houses be available for all families with young children; even the proportion of other households who might prefer to live in houses but will be obliged to live in other types of dwelling, well suited to their needs, will be relatively small. For example, under the "maximum" standard young married couples without children will be accommodated mainly in houses, with only ten per cent in cottage flats and up to 20 per cent in ordinary flats. The proportion of older married couples with children over 14 accommodated in houses will be 50 per cent (as against 75 per cent under the "normal" standard), with 35 per cent in flats and 15 per cent in cottage flats. About 70 per cent of the older married couples without children will normally be accommodated in houses, this figure being reduced to 40 per cent under the "maximum" standard of development.

NET RESIDENTIAL DENSITIES

The next step is to work out the total acreage required for residential purposes in a neighbourhood of 10,000 people under each of these four development standards, and hence the corresponding net residential densities. This

is simply a matter of expressing the proportions set out in Table 9 in terms of the appropriate net density standards (see page 29).

The maximum net density for each type of dwelling must be applied in both inner and outer redevelopment areas (i.e., in areas governed by both "maximum" and "close" development standards) in order that the number of people who will have to be rehoused elsewhere may be kept to a minimum. The difference in net residential density between "maximum" and "close" development will therefore be limited to the effect of the larger proportion of dwelling-houses prescribed by the "close" standard. Under the "normal" standard, on the other hand, not only will the ratio of houses to other types of dwelling be higher, but each type will be built at a lower density—the normal net density. Consequently the difference in net residential density between "close" and "normal" development will be quite substantial. Where the "open" standard applies, the net residential density will, of course, be still further reduced by the combined effect of a lower net density for each type of dwelling and a higher proportion of dwellings of the type that take up the most space.

The results of these calculations, worked out in each case on the basis of a hypothetical neighbourhood of 10,000 persons,* are summarised in Table 10 below.

The reader who is familiar with recent official publications will doubtless be struck by the marked difference between the "maximum" net residential density here proposed and the high figures which are considered attainable elsewhere. It must therefore be reiterated that the standards on which our calculations are based are in every case the lowest that can be regarded as compatible with the essential purpose of all planning—to put bodily and mental health within the reach of every man, woman and child in the community. The plain fact is that when the problem is approached from the right end—the needs of the individual family unit—a thorough investigation of the physical factors involved proves beyond doubt that the net residential density figures in current vogue—often exceeding 30 dwellings or 100 persons to the acre—are quite unreal. It will be found impossible to apply them in practice without creating new slums.

Table 10

Type of dwelling	"MAXIMUM"			"CLOSE"			"NORMAL"			"OPEN"		
	Number of dwellings	Net density	Acres	Number of dwellings	Net density	Acres	Number of dwellings	Net density	Acres	Number of dwellings	Net density	Acres
Houses	1,975	16	138.25	2,199	16	152.06	2,484	12.5	217.50	2,541	6	423.50
Cottage flats	237	30	23.86	234	30	16.50	234	30	9.21	418	18	23.22
Flats	716	40	3.15	495	40	3.15	221	30	3.83	118	20	5.90
Single persons' flats	126	24	0.96	126	24	0.96	115	16	1.44	—	—	—
Old people's cottage flats	23	—	—	23	—	—	23	—	—	—	—	—
Total	3,077*	—	166.22	3,077*	—	172.67	3,077*	—	231.98	3,077*	—	452.62
Net residential density	18.51			17.82			13.26			6.80		

* 10,000 persons, at 3.25 persons per dwelling, will require 3,077 dwellings.

GROSS DENSITIES

To determine the gross acreage that will be needed for all purposes in a neighbourhood of 10,000 persons under each of the three main standards of development (and hence the corresponding gross neighbourhood densities), we must add to the totals in Table 10 above the allocations fixed in Parts III, IV and VI for other neighbourhood requirements. The results are summarised in Table 11.

Table 11

	NEW DEVELOPMENT		REDEVELOPMENT			
	"Normal"		"Close"		"Maximum"	
	Number	Acres	Number	Acres	Number	Acres
Neighbourhood centre						
Community centre	1	4.0	1	3.0	1	3.0
Branch library	1	0.5	1	0.5	1	0.5
Health sub-centre	1	2.0	1	1.5	1	1.5
Shops	30*	4.3	30*	3.5	30*	6.5
Other requirements						
Churches, halls, etc.	—	7.5	—	5.0	—	5.0
Public houses	5	3.0	6	2.4	6	2.4
Additional shops	8	0.56	8	0.5	8	0.5
Dwellings	3,077	231.98	3,077	172.67	3,077	166.22
Nursery schools	5	1.66	4	1.33	4	1.33
Infant schools	2	3.0	1	2.0	1	2.0
Junior schools	2	10.5	1	4.5	1	4.5
Children's playparks	—	5.0	—	5.0	—	5.0
Organised games	—	21.0	—	21.0	—	21.0
Ornamental parks	—	20.0	—	—	—	—
Allotments	—	10.0	—	10.0	—	—
Minor parkways	—	10.0	—	4.0	—	4.0
Total acreage	—	335.00	—	236.90	—	220.45
Gross neighbourhood density in dwellings per acre	9.18		12.99		13.96	
Gross neighbourhood density in persons per acre	30		42		45	

* Minimum number. Space reserved for additional 15 shops.

Similarly, the gross acreage required for a residential district of 50,000 persons under each of the three main standards of development (and the corresponding gross district densities) can be found by adding further allocations for the district's needs to the total acreage to be occupied by its five constituent neighbourhoods, as shown in Table 12.

THE OVERSPILL PROBLEM

All that remains to be done, therefore, in order to find out how many people can be properly accommodated within the present boundaries of Manchester at any given period in the future, is to multiply the acreage of each new or redeveloped district by the appropriate gross district density figure, add the results, and then add the number of people who, according to our population forecasts, will still be living in other parts of the city. Assuming that within the next 30 years Wythenshawe will have been fully developed and all the districts classed as redevelopment areas will have been completely rebuilt, the result of such a calculation for the year 1975 is a total of 475,000 persons.

Table 12

	NEW DEVELOPMENT		REDEVELOPMENT			
	"Normal"		"Close"		"Maximum"	
	No.	Acres	No.	Acres	No.	Acres
Within five neighbourhoods	—	1,672.5†	—	1,182.5†	—	1,100.25†
District centre						
District hall	1	4.0	1	3.0	1	3.0
Main library	1	1.5	1	1.0	1	1.0
Main health centre	1	5.0	1	4.0	1	4.0
Cinemas	2	3.0	2	2.0	2	2.0
Public baths	1	2.0	1	2.0	1	2.0
District shopping, commercial and civic area	—	15.0	—	12.0	—	12.0
Public houses	3	3.75	3	2.2	3	2.2
Police station, fire station	1	2.5	1	2.5	1	2.5
Petrol stations and car park	—	2.5	—	2.5	—	2.5
General district requirements						
Domestic industrial area	—	12.0	—	10.0	—	10.0
Additional organised games	—	—	—	120.0	—	—*
Ornamental parks	—	—	—	100.0	—	—*
Modern schools	—	91.5	—	42.0	—	42.0
Grammar schools	—	20.5	—	9.0	—	9.0
Technical schools	—	29.3	—	12.5	—	12.5
County colleges	—	10.4	—	4.7	—	4.7
Roman Catholic schools	—	50.85	—	25.3	—	25.3
Cinemas	2	3.0	2	2.0	2	2.0
Public baths	1	1.5	1	1.5	1	1.5
Major roads and parkways	—	370.0	—	195.0	—	195.0
Total acreage	—	2,300.8	—	1,735.70	—	1,433.45
Gross district density in dwellings per acre	6.68		8.87		10.73	
Gross district density in persons per acre	22		29		35	

† Five times totals in Table 11, less area required for one branch library and one health sub-centre.

* Balance of open-space requirements provided outside district.

These tables show that as the size of the unit increases, so the overall density decreases, and progressively less benefit in terms of space-saving is obtained by crowding houses and flats at high densities. If the residential areas were entirely redeveloped in flats the increase in gross district density over the "maximum" standard, assuming full provision of public open space, would amount to 18 per cent only, as compared with an increase of 30 per cent in gross neighbourhood density, and 45 per cent in net residential density. These figures throw a new light on the fallacy of high densities in residential development.

As compared with Manchester's present population of about 705,000 (including those absent in the forces or on war work) a prospective limit of 475,000 may seem low indeed. It must be remembered, however, that our population is expected to diminish by over 125,000 in the next 30 years alone, and that the decline will be even more rapid thereafter if current trends persist. It must also be remembered that this drastic reduction in the city's capacity does not represent an equally drastic lowering of the overall housing density; it is partly attributable to the anticipated decline in the average number of persons per dwelling.

But even a comparison between this prospective limit to

the city's capacity and our population estimate for the end of the redevelopment period does not give a true conception of the nature or the scale of the overspill problem. What matters is not so much the ultimate position—the extent to which the house-room available within the city's borders after redevelopment will fall short of the needs of the people for whom Manchester must by then have found accommodation—what matters is the deficiency or surplus of housing space that will arise year by year as redevelopment proceeds. For all the land within the city (including Wythenshawe) that is now available and zoned for housing will have been used up by 1949; thereafter old houses must be demolished so that new ones can be built in their place, and their present occupants must first be rehoused. Moreover, demolition must start in the most congested areas, where less than one-third of the present occupants can be properly rehoused on the site. Further, this initial stage of the redevelopment programme will be in progress at a time when the number of households which the city must accommodate is still increasing: our forecast shows that over 7,000 will be added to the number of family units in need of separate accommodation during the next six years. Obviously, then, the gross overspill cannot be spread evenly over a long period; the rate of displacement must be highest in the early years of redevelopment.

It is equally obvious, however, that we must do everything we can to minimise the overspill. If in some 50 years' time the city's population is in any case going to fall below the number that can decently be accommodated within the city's present boundaries, the fewer we have in the meantime been obliged to accommodate elsewhere the better. We shall have to explore very thoroughly the potential value of every available means of conserving population without prolonging intolerable living conditions.

THE REDEVELOPMENT PROGRAMME

Clearly, the only way to assess the magnitude of our overspill problem is to prepare a detailed redevelopment programme extending over the next 25 or 30 years, and to examine its implications stage by stage.

During this period land now occupied by houses will become available for industrial and commercial use, for the centres of culture and medicine and for major open spaces, as shown on the Zoning Map and in Table 13.

Table 13

	<i>Industrial Acres</i>	<i>Commercial Acres</i>	<i>Centres of culture and medicine Acres</i>	<i>Major open spaces Acres</i>
First stage ..	76	53	42	6
Second „ ..	159	9	—	21
Third „ ..	66	—	56	68
Fourth „ ..	51	—	5	27
Fifth „ ..	62	—	3	45
Sixth „ ..	20	5	—	17
Totals ..	434	67	106	184

Working first of all from the order of priority laid down for the slum areas by the Medical Officer of Health, and thereafter according to the age of property, we have prepared a schedule for each succeeding clearance area, showing the number of houses to be demolished and the acreage they occupy. By deducting the acreage to be reserved for non-residential uses (as given in Table 13 above) we have ascertained the net acreage that will be available for rehousing in each case, and by applying to that acreage the appropriate gross density standard (taking into account the area occupied by those existing schools, shops, and other communal provisions which are worth retaining) we have calculated the number of new houses to be built within each clearance area. In this way we have computed the future residential capacity of every part of the city containing houses which date from about 1900 or earlier, and which are therefore likely to be ripe for replacement within the next 25 or 30 years.

We cannot, however, embark on the demolition of old houses until we have made up the war-time arrears in new construction. The corporation hopes to build 2,500 houses in the first year and 4,300 in the second, but all these are already earmarked for people who are now living in lodgings and have applied for corporation houses (3,700), for Servicemen who have no homes for their families (estimated at 1,500) and to meet the anticipated increase in the number of households during the two years. It would not be possible at this stage to find room for people displaced by demolitions, even if the Ministry of Health were likely to permit further slum clearance before the immediate housing deficiency has been made good.

By 1948 the corporation hopes to attain a building rate of 6,000 houses a year. Whether it will be possible to reach so high a level depends on the efficiency of the building industry and on the proportion of our labour and material resources which we as a nation are resolved to devote to house-building. If London and other heavily damaged towns are given first priority such a figure can hardly be attained so soon, except at the expense of other urgent building work—particularly for the social services and for the modernisation of our export industries. It should be recalled that the highest output of houses achieved in any one year before the war in Manchester (by public and private enterprise combined) was about 5,000.

For how long it is desirable that such a rate, if reached, should be maintained is another question, and one that bears closely on the overspill problem. If it were continued until 1966 all the houses over 70 years old would by then have been replaced, and no more new ones would be needed for the next 25 years, because all the houses reaching the age of 70 during that period would be surplus to the requirements of our declining population.

By 1991 the number of households to be accommodated will be 36,000 fewer than the number of dwellings now available for occupation. Consequently, if we were to stop building at the rate of 6,000 houses a year in 1958 we should need only another 42,600 new houses in the following 33 years in order to ensure that by the end of that time

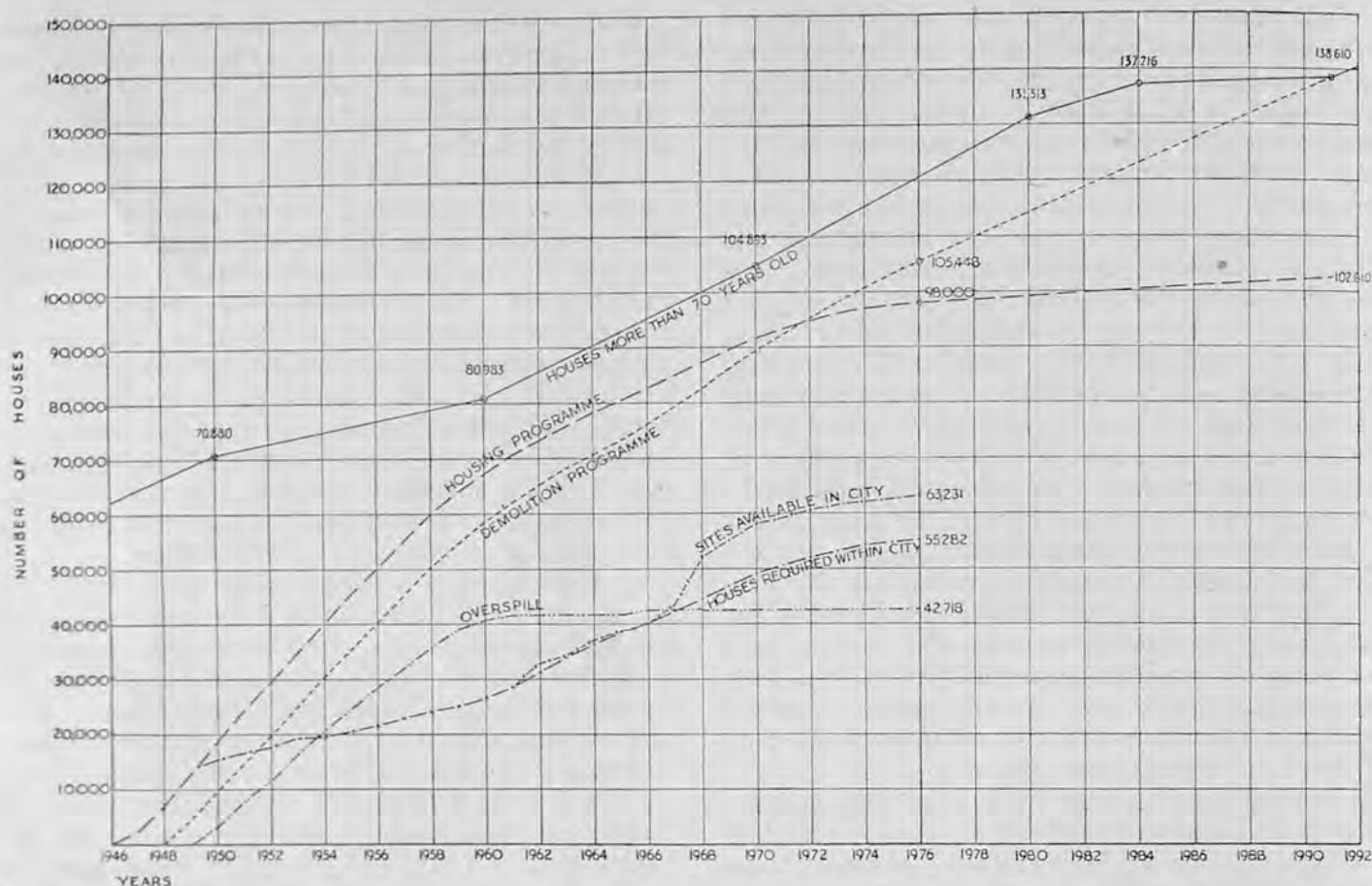


Diagram 8

A PROVISIONAL PROGRAMME FOR DEMOLITION, HOUSING AND OVERSPILL

every family had a dwelling less than 70 years old. But to spread the building of these 42,600 houses evenly over the 33 years between 1958 and 1991 would be to delay unduly the replacement of those still remaining houses (nearly 30,000 of them) which would be over 70 years old at the beginning of this period.

Surely what is needed is a graduated programme calling for the maximum possible output of new houses for the first 12 years or so (by which time the most congested areas will have been redeveloped), followed by an easing-off period which will enable labour and equipment to be gradually absorbed into other building work, or into other trades, and which will merge imperceptibly, by the time all 70-year-old houses have been demolished, into a phase of long-term redevelopment with a rate of house-building just high enough to meet current replacement needs.

A provisional programme of this character is illustrated by Diagram 8. It envisages the building of new houses at a rate of about 5,700 a year from 1948 to 1954, and of about 5,000 a year for the next four years, making a total (including the first and second years' programmes) of about 60,000 new houses by 1958. Demolition cannot begin until the immediate shortage has been made good, and will be held back for a few years thereafter while the number of households to be accommodated is still increasing. Consequently the 60,000 houses which are now 70 years old or

more would not all be demolished until 1961, by which time about 22,000 more would have reached that age.

From 1958 the building programme settles down gradually to about 3,200 a year for five years, and then to about 2,000 a year until 1972; thereafter it tails off to some 300 a year from 1976 onwards. It will be observed that under this programme demolition would catch up with new building by 1972 or thereabouts, and that thenceforward the number of old houses demolished would continuously and increasingly exceed the number of new ones built. This, of course, is explained by the fact that in 1972 the number of households requiring accommodation is expected to begin to fall at an ever-increasing rate below the number of dwellings available.

On this basis the 105,448 houses built before 1900 will all have been demolished by 1976, but only 98,000 new ones will have had to be built in view of the decline in the total number of households.

Diagram 8 also shows how many of these 98,000 new houses, if built according to the appropriate gross density standards, can be accommodated as redevelopment proceeds within the city's present boundaries. The total by the year 1976 will be 55,282. The remainder represents the overspill which must be accommodated elsewhere. It will be seen that this building outside the city must begin in 1949 and must continue until 1961, after which the new

houses that can be built on cleared sites within the city, together with existing houses left vacant by a falling population, will more than suffice to re-accommodate all the families displaced by each year's demolition programme. The annual overspill will therefore begin at about 4,200 families a year and tail off towards the end, amounting in the course of 12 years to a total of 42,718 families, or about 138,800 people.

Such, then, is the scale of the overspill problem that would be entailed by the provisional redevelopment programme outlined above. It may be asked whether this overspill could not be avoided if we compelled all the families rehoused in redevelopment areas, irrespective of their needs and desires, to live in flats.

We have seen how the increase in density to be gained by substituting flats for houses shrinks from 45 per cent when only housing space is considered to 30 per cent when neighbourhood needs are taken into account and to 18 per cent in terms of gross district density. When we come to apply the standards we have adopted to the city as a whole, adding to our residential acreage the space occupied by industry, major highways and parks, railways, canals and other provisions not previously included in our calculations, the gross overall city density works out at only 5.36 dwellings (or 17 persons) to the acre, and the difference that would be made by redeveloping the residential zones exclusively in the form of flats drops to a mere 10 per cent.

From the point of view of the overspill problem such a reduction is neither here nor there, for the difficulties involved in bringing into being a new social and civic life for people transplanted miles away from their familiar surroundings are substantially the same whether the number of families involved is 35,000 or 40,000.

To force two or three generations of people to bring

up young children in flats for such an insignificant return would at any time be inexcusable. In the particular circumstances of to-day, with a rapid population decline in prospect, it would be nothing short of lunacy. Before most of the new flats had lived out more than a quarter of their span of useful life we should find ourselves with more housing space within the city than we knew what to do with. Here, then, is the complete and final vindication of the housing standards recommended in this book.

It may be questioned whether we are entitled to draw such positive conclusions from population estimates extending over 45 years. But these estimates were not compiled in any spirit of pessimism; they faithfully indicate the serious position that must arise unless there is some change from pre-war trends. It is certainly much to be hoped that they will be confounded by events. In fact, however, even a 50 per cent increase in the birth rate per 100 married women of child-bearing age would have little effect on the number of dwellings required in the overspill period between 1949 and 1961; broadly speaking, it would merely increase the number of children per household, resulting in an average family unit of 3.48 persons by 1961. Between 1961 and 1966 it would give rise to a need for some 3,000 more houses outside the city, but from 1966 to 1972 cleared sites within our boundaries would still suffice for the 8,000 extra new houses that would be required. Thereafter the overspill would begin again, amounting to a further 32,000 houses by 1991.

One of the major objectives of this Plan is to provide living conditions which will encourage an increase in the birth rate. So far from upsetting our proposals, such an increase would make them more economical and secure a fuller reward for the energies and resources that must be expended to carry them out.

THE SATELLITE

There are two ways in which our overspill might be accommodated.

(a) By enlargement of existing towns and villages.

(b) By the creation of a new satellite town or towns.

These alternatives are now being considered by a joint committee of the Lancashire and Cheshire county councils and the Manchester, Salford and Stretford corporations, whose findings must not be anticipated here. All that we can do at this point is to draw attention to the conditions which a satisfactory solution on either of these lines must satisfy.

It is generally desirable that displaced families should be able to choose between several alternative reception areas, even if conditions prevent the development of more than one or two on any substantial scale. But people should not be encouraged to move to any place which is unlikely to attract a corresponding influx of industries sufficiently diversified in structure to guarantee full and stable employment.

Another essential condition is that the new or enlarged township should have around it, when fully developed, a

sufficient width of open country to serve as a green belt and a source of fresh food both for its own inhabitants and for the people of neighbouring communities. A glance at the map will show that this condition severely limits the choice of site for any major satellite within a short distance of Manchester's present boundaries.

Finally, Manchester owes it to those of its present citizens who must be uprooted from their homes and rehoused elsewhere to make sure that the development of any new or enlarged community to which they are transplanted shall attain satisfactory standards and shall keep in step with the city's demolition programme.

Manchester has already partially completed one satellite town. (Wythenshawe may not ideally exemplify the term, but that, for all practical purposes, is what it is.) From this enterprise much practical experience has been gained. Between the purchase of the original Wythenshawe Estate and the stage at which development began in earnest, seven years elapsed—years of disappointment and frustration. Only four years can be allowed to pass before the first few thousand houses are actually built in the new satellite.

MANCHESTER'S FAILURE to maintain a reasonable standard of open space in the course of its growth will prove in the long run an expensive mistake. Land which has been built upon is sterile; its restoration to fertility will be a slow, laborious and painstaking business; but that the effort must be made is surely undeniable. Our redevelopment must not be based on the fallacy that bricks and mortar are more valuable than human life and well-being.

The reservation of adequate children's playparks, neighbourhood parks and belts of unspoiled country is an elementary safeguard for the health of the community. There should be enough playing-fields to enable children and adults alike to acquire the habit of outdoor exercise and a sense of positive health and vigour. Parks, parkways and pedestrian ways should bring pleasant and convenient walks within easy reach of all residential neighbourhoods. Ornamental gardens, lawns, trees and shrubs should form a fresh and attractive setting for housing estates, softening the hard lines of their buildings.

PUBLIC PARKLANDS

Manchester now has 22 parks, 52 recreation grounds and 35 small open spaces, with a total area of 2,209 acres. Substantial as this may seem, it amounts to only three acres per 1,000 of the city's population, which is less than half the recognised minimum standard.

Plate 15 shows the larger parks and recreation grounds in the city and the area which each now serves, assuming that $6\frac{1}{2}$ acres are required for every 1,000 of the existing population— $4\frac{1}{2}$ acres for organised games and two acres for ornamental gardens.

Special playgrounds should be set aside for younger children, equipped with such attractions as sand gardens, paddling-pools and the usual swings and slides. They should be planted as pleasantly as possible with trees, flowers and grass, planned to give some protection from the weather, and carefully sited to ensure that they are safely and conveniently accessible from the major groups of dwellings. A quarter of a mile is considered to be the maximum distance any child should have to walk from home to playpark, and no child should have to cross a main road on the way. Playparks might well be sited next to infant and junior school playgrounds, with no intervening barrier, so that the combined facilities may always be available in and out of school hours.

After the last war the adult demand for playing-fields was suddenly swollen by the demobilisation of men whose army training had made them want to continue some form of open-air activity. This time the demand will be further increased and continuously sustained by adolescents accustomed to greater opportunities for games at school.

Even where a neighbourhood is conveniently near a major open space, such as a large city park or green belt,

it should still have a small park of its own, not less than seven acres in extent, containing tennis courts, bowling-greens, a junior games field and some rest gardens for old people.

Ornamental parks, usually small, are of several kinds. They may be planned as rest gardens, where the weary and the elderly may find refreshment in quiet and attractive surroundings; they may be designed as decorative settings for public buildings; they may combine both these functions; or yet again they may take the form of woods and spinneys which it would be sheer vandalism to destroy. Wherever possible they should be combined with playing-fields, which tend to look rather desolate unless relieved by flower gardens, lawns and trees.

In addition to these three categories, which would add up to seven acres per 1,000 persons, there should be two other forms of open space—minor parkways and allotments. The allocations which should, wherever possible, be made in neighbourhood development and redevelopment respectively are summarised on Plates 16 and 17.

Plate 16 also shows how various neighbourhood provisions in new development areas can be grouped together to form a system of open spaces linked by field paths and major parkways, so as to relieve that monotony which has been the hallmark of housing estates between the wars. Such a treatment is, of course, not practicable in redevelopment areas, but even here features such as tree-planted verges and open stretches of greensward will do much to soften the starkness of adjoining buildings.

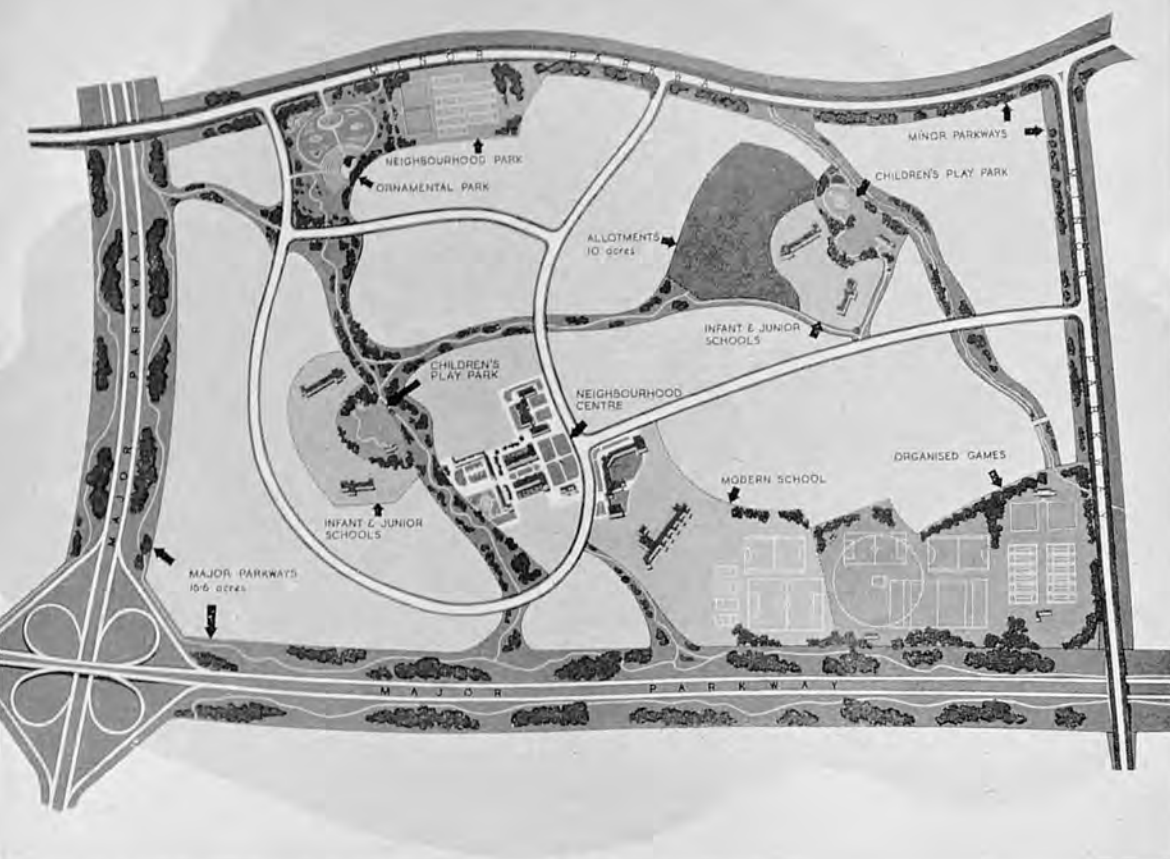
THE OPEN SPACE SYSTEM

In areas of new development all open spaces—school playing-fields, ornamental parks, neighbourhood parks—should be linked together by field paths, so that it may be possible to walk through each neighbourhood without using the road system. These field paths—sometimes referred to as "pedestrian parkways"—should be rather like parkways in miniature, with informal grass verges planted with clusters of trees and shrubs.

Experience has proved that the maintenance cost of small parks is relatively higher than that of larger areas; it is accordingly suggested that neighbourhood parks, organised-games areas, ornamental parks and school playing-fields should where possible be grouped in continuous expanses of open space, normally not less than 20 acres in extent. Those which cannot be provided at a reasonable cost within redevelopment neighbourhoods might be grouped to form major parks.

Manchester is already fairly well endowed with such parks, of which Heaton Park, Boggart Hole Clough and Wythenshawe Park are excellent examples. In general they are on the outskirts of the city, too far from the chief centres of population for evening walks and recreation,

Plate 15 opposite



NEIGHBOURHOOD OPEN SPACES

OPEN SPACE PROVISIONS— NEW DEVELOPMENT

For population of 10,000

Minimum parks within any neighbourhood

Children's playparks	5 acres
Neighbourhood park including bowls, tennis and junior games	7 "
Ornamental park and field paths	20 acres
Allotments	10 "
Minor parkways	10 "

Provided in neighbourhood or nearby

Organised games	14 acres
School playing-fields	24 "
partly interchangeable with organised-games area.	

1



2

THE OPEN SPACE SYSTEM

GENERAL PRINCIPLES

1. A diagrammatic representation of the types and distribution of open space within the neighbourhood, linked together by field paths and parkways.

Plate 16



3



NEIGHBOURHOOD OPEN SPACES

OPEN SPACE PROVISIONS—
REDEVELOPMENT ("Maximum" standard)

For population of 10,000

Minimum parks within any neighbourhood

Children's playparks 5 acres

Neighbourhood park 7 "
including bowls, tennis and
junior games

Minor parkways 4 "

Provided in neighbourhood or nearby

Organised games 14 acres

Provided within reasonable distance of
neighbourhood

Organised games 24 acres

Ornamental park 20 "

5



PHYSICAL RECREATION

2. A children's playpark in Wythen-shawe. The few children's parks provided in the past have lacked inspiration. An enclosure for swings is not enough; there must also be opportunity for imaginative play, too.
3. The open-air swimming-pool, Platt Fields.
4. Withington Golf Course.

6



MENTAL RELAXATION

The neighbourhood park provides for a quiet game of bowls or tennis, the rest garden for relaxation and contemplation.

5. Marie Louise Gardens, West Didsbury.
6. A bowling-green in Crowcroft Park.
7. The ornamental gardens, Brookdale Park.

7





1



4

RIVERS

- 1, 2 & 3. The River Medlock in the heart of the city. This should be covered in as rebuilding proceeds.
4. The River Mersey at Cheadle Bridge.
5. The River Irk near Heaton Park.

Plate 18



2



3



5

but at week-ends and at holiday times they are a great attraction.

The belt of open land following the meandering course of the River Mersey and separating the older city area from Northenden and Wythenshawe offers a magnificent opportunity for the landscaping of a parkland zone some four miles in length and 695 acres in area. The land is at present flat, subject to flooding and featureless in appearance. But an extensive programme of controlled tipping and tree-planting could transform it into the city's finest park, incorporating riverside walks, lakes and streams, woods and spinneys, undulating pasture and extensive sports areas, including the four existing golf courses.

It is generally agreed that in order to obtain the greatest possible value from new open spaces an attempt should be made to bring the countryside into the city by extending wedges of open space from a green belt on the boundary right into the city centre. Any such attempt must, however, be renounced as too idealistic, since it would not only be exceedingly costly but would add to the movement of population from the inner redevelopment areas. As the next best thing it is suggested that the green wedges indicated on the Zoning Map should be continued inwards in the form of major and minor parkways, linked up with the existing and proposed parks to form a continuous system.

Of the three major parkways proposed, one—the Western Parkway—lies wholly in the Wythenshawe area. Princess Parkway will be the main access road from the south and will provide a magnificent approach to the city. The third—the Intermediate Ring Road—is the terminal line for the green wedges already described.

SPORTS GROUNDS

There are now 157 acres of open space within the city belonging to private tennis clubs, cricket clubs and so on. While these private grounds are not normally available to the population at large, they are nevertheless of public importance in that they help to relieve the pressure on municipal playing-fields and afford valuable amenities to the surrounding areas. Incidentally, this amenity value would be appreciably increased if high and often ugly boundary fences were replaced by hedges (set with open railings if need be) and planted borders. The Plan proposes that all existing private open spaces should be retained as such. They should also be supplemented by public sports centres in the form of large stadia to accommodate 14,000 to 20,000 persons each, incorporating running and cycle tracks and perhaps boxing arenas in which exhibition matches could be held. Further buildings might provide facilities for ice-skating, gymnastics, badminton and squash, together with the necessary refreshment and common rooms and possibly a conference hall.

It is suggested that Manchester should have two such sports centres, one to serve North Manchester in the proposed public open space in Cheetham, south of the Intermediate Ring Road, and the other at Hough End Fields to serve South Manchester.

The ordinary public open space within the city (excluding Wythenshawe) may be summarised as follows:

Existing major parks and open spaces	1,527	acres
Proposed new major parks and open spaces ..	1,030	„
Existing and proposed public open space within the neighbourhoods in the form of ornamental gardens, children's playparks and playing-fields ..	593	„
Total	3,150	„

This total would give an average of 7.97 acres per 1,000 people, as compared with the recommended minimum standard of seven acres. The over-provision, if it can be so called, occurs in the northern part of the city and results mainly from the great size of Heaton Park (638 acres) and from the Clayton Vale proposal (211 acres).

Special open-space provisions are:

Green belt	957	acres
Existing private open spaces (other than golf courses which are included in the green belt)	157	„
Existing and proposed ornamental gardens within the city centre	37	„
Proposed major parkways	300	„
Existing and proposed allotments	319	„
Total	1,770	„

These areas bring the total to 4,920 acres, of which 1,975 acres are additional to those already available.

RIVERS

Some of the city's rivers pass through the open spaces proposed in the Plan; in time they can to a great extent be cleansed of the impurities which now spoil their appearance. It must be remembered, however, that pollution is not confined to their Manchester sections; ameliorative measures must also, in some cases, be applied nearer the source.

River pollution dates from the era of industrial expansion when it was taken for granted that industry should pour its liquid waste products into the most convenient watercourse. It is periodically aggravated by the overflow of storm water from public sewers.

The more open development proposed in the Plan will reduce the area covered by impervious paving and roofs; in consequence there will be less storm water flowing to the sewers and a less frequent discharge of overflow from the sewers to the rivers. Where this relief is not sufficient it may be necessary to construct some lengths of storm-water relief sewers so that they may outfall at points where they will not affect amenities.

Those river sections which have no amenity value (because, for instance, of the nature of the development through which they pass) may advantageously be straightened out and culverted or covered over as adjoining areas are redeveloped, so that irregular sites may be reshaped into areas more suitable for building purposes. Elsewhere all streams and river banks should eventually be treated as natural features of parks and rest gardens.

A SMOKELESS CITY

No planning scheme for Manchester would be complete unless it included measures for putting an end to the pollution of the atmosphere by domestic and industrial smoke.

Manchester's geographical position tends to promote the formation of clouds and fog. It is not, however, fog by itself that is particularly obnoxious and injurious to health, but the dense pall of soot which accompanies it. Perhaps the most serious consequence of smoke-with-fog is lack of sunlight. In this respect Manchester holds a very unenviable position: it has one of the lowest sunshine records in the British Isles.

The following measurements of daylight intensity averaged over a period of eight years at various stations in and near the city show the extent to which natural light and sunshine are obstructed by atmospheric pollution. Taking the daylight factor at Timperley (seven miles south-west of the city centre) as 100·0:

City centre (commercial)	68·6
Holt Town (an industrial area 1½ miles north-east of the city centre)	39·1
Monsall (a mixed area 2½ miles north-east of the city centre)	52·6

The number of deaths from respiratory diseases in Manchester and Salford during the month of December, 1939, (a month free from fogs) was 80. During the following month, when there were 16 days of heavy fog, the number of deaths in this category was 502. Approximately one-sixth of the total deaths in the city are due to respiratory diseases. Statistics also show that the numbers of deaths from pulmonary and cardiac diseases vary in direct proportion with the intensity and duration of smoke fogs.

The following recordings on standard soot-deposit gauges illustrate the preponderance of air-borne dirt in those parts of the city where industry is most concentrated:

Table 14

Situation	Type of district	Distance and direction from centre of city	Mean annual total deposit of solids 1939-43 (Tons/sq.mil.)
Baguley Sanatorium	Semi-rural	6½ miles S.S.W.	120·36
Booth Hall Hospital	Residential	3½ miles N.N.E.	172·92
Heaton Park	Residential	3½ miles N.	148·20
Monsall	Semi-industrial	2½ miles N.E.	229·80
Philips Park	Industrial	2 miles E.N.E.	455·40
Rusholme	Congested residential	1½ miles S.	273·60
Withington	Residential	3½ miles S.	204·48

The imperfect combustion of bituminous coal discharges ash, tarry soot and sulphur gases into the atmosphere. The soot adheres tenaciously to buildings, blackening their surfaces and bringing sulphur acid into close contact with their fabric. Building stones, metal-work and paint-work are all susceptible to the disintegrating attacks of sulphur

acid. The cost of regularly cleaning the face of the whole city and restoring damaged fabrics would be prohibitive, though attempts have been made in the past to preserve the original appearance of a few individual buildings. Repair work is a constant burden on property owners.

Smoke pollution is equally detrimental to trees and plant life. The deposit of soot on the surface of the soil hinders the free passage of air to the roots of the plants, and if untillied for some time the soil accumulates acid and becomes sour. Flowers and trees are stunted by lack of natural sunshine. Soot on the foliage closes the breathing pores of the leaves, and the acid content burns and often kills the growing-points of the plants. It has been estimated that the cost of maintaining shrubs and plants in the corporation parks in those parts of the city most affected by smoke pollution is well over ten times that of similar work under natural atmospheric conditions.

A comparative survey of the cost of household washing has revealed that the annual wash bill in the average small home in Manchester is at least £1/12/6 more than in Harrogate, without taking into account the extra wear and tear on the clothes. The extra labour imposed on the housewife in 112,616 houses in the city, where, as a general rule, the housework is done single-handed, has been estimated to amount to 5,850,000 hours in the course of a year.

Real progress towards the complete elimination of smoke throughout the city can be achieved only by a resolute and systematic application of the following measures:

- (1) The improvement of industrial boilers and of auxiliary plant for washing fuels and flue gases.
- (2) The extension of the use of gas and electricity wherever practicable.
- (3) Such an improvement of domestic appliances for burning solid fuel that smokeless fuels become more economical and convenient to use than bituminous coal.
- (4) The installation of district heating in new and re-developed residential and industrial areas, so that the use of coal may be confined to a small number of central plants which can be made to burn it smokelessly and with the highest possible efficiency.

The first three are useful palliatives, capable of immediate application; the last will take time, but constitutes the only radical remedy for atmospheric pollution.

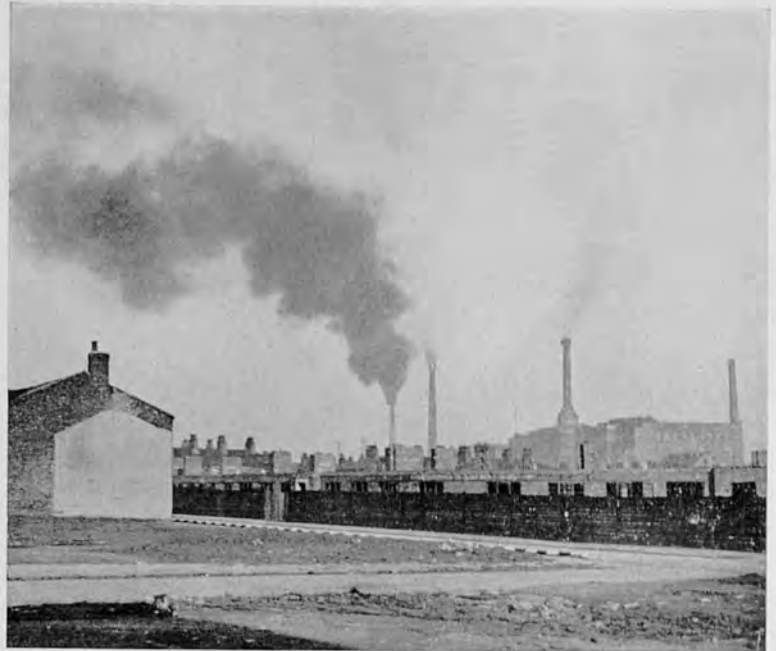
DISTRICT HEATING

An extension of the principle of central heating, district heating means the circulation of hot water through insulated mains from a central boiler plant to houses and industrial premises. Sufficient heat can be supplied to warm the houses on a large estate to any desired temperature. In addition a constant supply of hot water can be provided for domestic purposes.

District heating has many advantages to commend its

ATMOSPHERIC POLLUTION

- 1 & 2. Industrial chimneys emitting a pall of smoke, obscuring sunlight and causing damage, dirt and decay.
3. Domestic fires are responsible for at least half of the city's smoke.
4. Part of a stone window sill, showing premature disintegration of the surface by noxious deposits from a polluted atmosphere.



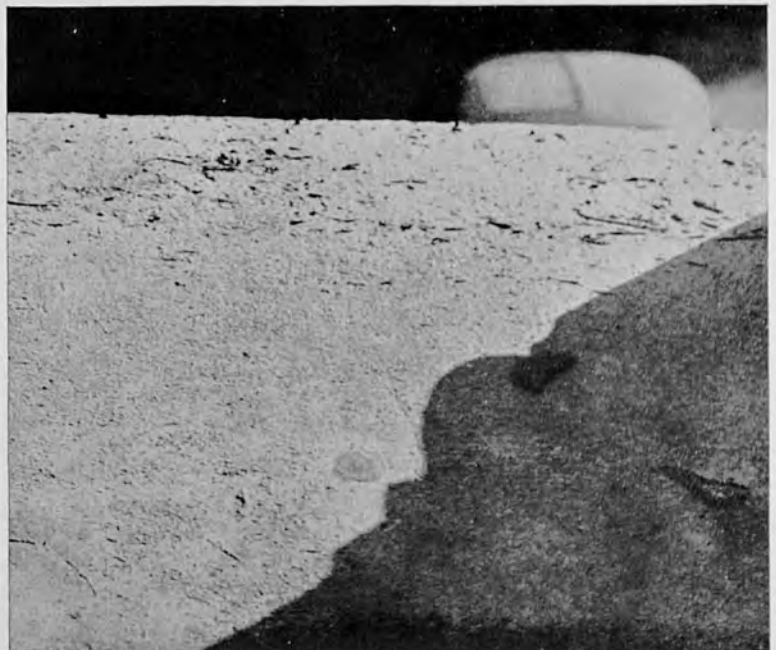
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4

PROJECT FOR CENTRES OF CULTURE, EDUCATION & MEDICINE.



REFERENCE

- 1 CIVIC HALL
- 2 CITY ASSEMBLY HALL
- 3 CIVIC THEATRE
- 4 CONCERT HALL
- 5 LITTLE THEATRE
- 6 CENTRAL BATHS
- 7 BROADCASTING HOUSE
- 8 UNIVERSITY, MAIN BLOCK
- 9 " UNION etc.
- 10 " FACULTY OF ARTS
- 11 " ARTS LIBRARY
- 12 " DENTAL SCHOOL
- 13 " FACULTY OF SCIENCE
- 14 ROYAL COLLEGE OF MUSIC
- 15 UNIVERSITY EXTENSIONS
- 16 HOLY NAME R.C. CENTRE
- 17 MEDICAL SCHOOL
- 18 HALLS OF RESIDENCE
- 19 PHYSICAL EDUCATION CENTRE
- 20 WHITWORTH PARK EXTENSION
- 21 SCHOOL OF DOMESTIC ECONOMY
- 22 SCHOOL OF COMMERCE
- 23 INSTITUTE OF ADULT EDUCATION
- 24 SCHOOL OF ART
- 25 CENTRAL COUNTY COLLEGE
- 26 COLLEGE OF TECHNOLOGY
- 27 RECREATION AREA
- 28 MANCHESTER ROYAL INFIRMARY
- 29 M.R.I. EXTENSIONS
- 30 ROYAL EYE HOSPITAL
- 31 ST. MARY'S HOSPITAL
- 32 FURTHER HOSPITAL RESERVATION
- 33 NURSING COLLEGE



SCALE OF FEET

0 500 1000 2000

adoption in preference to other forms of heating. The immediate benefits to the householder may be summarised as follows:

- (1) The whole house is heated for less money than is normally spent on coal fires to heat only one or two rooms, and a considerably higher degree of personal comfort is enjoyed throughout the house.
- (2) Clothes and household linen are constantly aired and ready for use.
- (3) A constant supply of hot water is available all day at all seasons of the year without any extra cost.
- (4) The labour required for carrying coal, kindling fires and attending them throughout the day, cleaning fireplaces and removing the dust arising from the use of coal fires is eliminated or very much reduced.
- (5) The need for internal and external decorations becomes less frequent.
- (6) The elimination of some fireplaces and chimney-breasts saves room space. It also reduces the initial building cost so that a lower economic house rental can be charged.
- (7) No frozen water pipes.

The provision of a smokeless-fuel fire in each house in conjunction with a district-heating scheme may be considered desirable as a source of occasional "topping-up" heat in the living-room and as an additional amenity. Alternatively gas or electricity could be used for this purpose, for both are ideally adapted to intermittent heating.

FUEL ECONOMY

To the neighbourhood generally, district heating would secure all the benefits of clean air, natural light, sunshine and unspoilt amenities. It would, of course, be necessary to burn coal at the central boiler station, but the size of the undertaking would make it possible to install and operate efficient fuel-combustion and smoke-prevention plant. A station of this kind can be virtually smokeless. The carting of coal through the streets and its delivery to individual premises would be rendered unnecessary. To flat-dwellers whose coal has to be carried up flights of stairs this is a great advantage.

To the nation as a whole the economy in fuel consumption realised by district heating is of supreme importance. Approximately one-third of the coal consumed in this country is used for domestic purposes. Coal is our greatest national asset, and since our reserves are definitely limited its efficient use will remain a national necessity in peace no less than in war.

A district-heating scheme for the part of Wythenshawe yet to be developed would involve the piping of hot water to 7,945 houses and flats, as well as to other necessary buildings. There are also two areas to be developed for industrial purposes to which heating, hot water and process steam might be supplied. Such a scheme would be an economical proposition, especially if the energy in the steam produced by the boilers were first used to generate electric power.

In an ordinary power station electricity is generated by

steam passing through turbines at high pressure. When it emerges from the turbines the steam still retains its latent heat (that is, the heat given off when steam is converted into water) and this may amount to over two-thirds of all its original heat; but because, having lost its pressure, it can no longer be used to generate power it is passed to a condenser where its latent heat is dissipated. In consequence even the largest power stations in the country operate at an overall thermal efficiency of only about 30 per cent.

This latent heat in the exhaust steam from the turbines could, however, be used to heat the water for a district-heating service instead of being wasted in warming up the air around a cooling-tower or the water in a nearby river. In such a combined power-generating and district-heating plant the overall thermal efficiency would be in the region of 75 per cent.

COMPARATIVE COSTS

Preliminary investigations and estimates based on anticipated post-war costs indicate that a district-heating service on these lines could be provided for approximately 5/- per house per week, exclusive of any supplementary heating costs, or an average weekly charge of 4/5 for all classes of dwellings. This compares favourably with the 6/11 per week which, on the basis of pre-war records of fuel consumption, the average Wythenshawe tenant is estimated to spend at present-day prices on coal fires supplemented by gas or electricity. It should be remembered in comparing these costs that the district-heating service would supply over three times as much heat as was provided by pre-war forms of heating in Wythenshawe.

The houses would be heated by means of radiators of the conventional type, which could be turned on or off at the occupier's will. The temperature of the water circulating through the system would be varied to meet fluctuating weather conditions by means of a thermostatic control at the main boiler station. Instead of a back boiler there would be a coil of copper piping inside the cylinder through which hot water from the generating station would circulate and impart its heat to the water in the cylinder.

In the inner city neighbourhoods a district-heating service could be operated still more economically than at Wythenshawe, because the residential grouping will be more compact.

The eventual elimination of smoke and fumes must be a prime objective in all post-war plans for the city. It is attainable, but it cannot be achieved rapidly. It must be a gradual process, marching with the physical redevelopment programme. The formation of a statutory regional smoke-abatement board, preferably with the same administrative boundaries as the South Lancashire and North Cheshire advisory planning area, would ensure the uniform application of smoke-abatement measures. Our ultimate objective must be to render the whole region free from atmospheric pollution, for only when this is accomplished can Manchester enjoy that clear sky which would revolutionise the character of our urban life.

LEARNING, MEDICINE AND THE ARTS

AT ONE TIME Manchester was a cultural metropolis in its own right, living up to a tradition of leadership in scientific and political thought and making a not inconsiderable contribution to the common fund in music and the arts. Latterly, however, the greater scope which London offers to the artist and intellectual worker has weakened the power of every provincial city to stimulate and satisfy the creative imagination of its citizens. But the war has stirred into restless life their intellectual curiosity and innate desire for beauty. Our task is to tend and cultivate this natural growth, for the purpose of all planning is to remove all obstacles to the enjoyment of urban civilisation in its highest form.

How our homes, our schools, our neighbourhoods and districts should be designed to foster cultural interests and to stimulate the civic sense has already been discussed. Here our concern is with the fabric and setting of the groups of buildings that should constitute the central focus of the region's cultural activities. Such a centre should in its physical form inspire and express the pride and forward-looking faith of a people who see in themselves the citizens of no mean city.

The natural association between learning and culture demands that the regional headquarters for the arts and for public debate should be grouped in close proximity to a university and other institutions of advanced education and research. These must be designed or developed on a scale appropriate to the post-war needs of a region dependent for its prosperity on technical skill and scientific progress. Again, the promised national health service will call for a vastly expanded university medical school, and this requires close physical association with a highly developed system of specialist hospitals maintaining research and teaching staffs.

A COMPOSITE PRECINCT

In the Victoria University of Manchester the region has the largest provincial centre of learning in England, whose substantial extension to cope with a greatly increased demand for higher education has already been foreshadowed by its Vice-Chancellor, Sir John Stopford. A little farther down Oxford Road the Manchester Royal Infirmary, St. Mary's Hospital, the Tuberculosis Clinic and the Royal Eye Hospital form an established nucleus for a comprehensive medical and surgical centre. The Plan accordingly provides for the reservation of the area on either side of Oxford Road from All Saints to the Intermediate Ring Road as a composite precinct devoted to learning, medicine and the arts.

To the east and west the proposed reservation would be bounded by Upper Brook Street and Cambridge Street.

It is intended that these two routes, together with Princess Road, should become the main southern radial highways. Their development will obviate the need to widen the present main traffic route by way of Wilmslow Road and Oxford Road—an undertaking which would involve the extremely expensive demolition of frontage buildings along Oxford Street. Wilmslow Road is the most attractive of present approaches to the city, being lined with trees for the greater part of its length. In the course of time the completion of the alternative roads will enable Oxford Road to be closed to through traffic at the northern end of the proposed precinct; thus the necessary quietude will be secured in the educational and hospital centres. South of the closure it would serve the precinct as an internal avenue; northwards it would form a direct link between the precinct and the city centre, leading through what is now the main entertainment quarter.

The area thus defined will be amply big enough to permit an open layout with a generous use of lawns and trees. Included in the precinct to the south is Whitworth Park and its proposed extension to the Intermediate Ring Road. Beyond that lie Platt Fields and the suggested low-density residential zone. The precinct will therefore constitute the tip of a green tongue set with buildings in open surroundings, which will form an excellent substitute for that unattainable ideal, a wedge of open space from the green belt to the city centre.

The exact form of the precinct's final layout cannot at this stage be prescribed, but a possible arrangement is shown on Plate 20, facing page 39. Its main components are identified by numbers for easy reference.

THE CULTURAL CENTRE

The approach from the city centre up the slope of Oxford Road opens out into a processional way flanked by formal gardens. Closing the vista stand the main buildings of the cultural centre, grouped on either side of a Civic Hall (1), through which they would be approached on ceremonial occasions. Outwardly this central feature should be designed as an expression of civic dignity and pride. Its interior should be planned for the display of Manchester's contributions to literature, art, social welfare, industry and commerce, its achievements in every field, and perhaps its history and its plans for the Manchester of generations to come.

To the west of the Civic Hall stands the Forum (2), an assembly hall intended to accommodate large public meetings and civic ceremonies in a setting worthy of a regional capital. Beyond this a Civic Theatre (3), planned as a separate unit, would revive the famous Horniman tradition, offering a repertory of classical, foreign and experimental productions, creating new audiences for the

commercial theatre rather than competing with it, and training new artists in its own academy of dramatic art.

To the east of the group a Concert Hall (4) would make a fitting home for the Hallé Orchestra, with comfortable seats for an audience of 3,000, proper accommodation for the instrumentalists and the best calculable acoustics. To the south a Little Theatre (5), with a capacity of 600, would provide a central home in a more intimate setting for the festivals of the 300 amateur dramatic societies which were active in the Manchester district in peace-time; it would also serve as a cinema for the display of civic and educational films and for the programmes of film societies—perhaps even for television shows.

A layout and design for the whole group has been prepared by the City Architect (see Plate 21). The style, shape and position of its main components have been dictated by their special purposes. Each could be built separately as opportunity serves, the last stage being the erection of the central feature closing Oxford Road.

On either side of the approach from the city centre, sites have been indicated for a Central Baths (6), containing Turkish and medicinal baths as well as swimming-pools (one of which should be large enough for international competitions), and a new Broadcasting House (7) to replace the present building in Piccadilly, which will be too small to accommodate an increasingly important post-war regional service, let alone the development of television.

THE EDUCATIONAL CENTRE

The area bounded by Oxford Road, Cambridge Street, the Inner Ring Road and the main precinctal road to the north contains most of the existing university buildings, including the original main block (8) on Oxford Road (built round a quadrangle), a block on Burlington Street (9) accommodating the students' unions and refectories, the arts faculty (10) and new arts library (11) on Lime Grove and the new dental hospital and school (12).

Within this area there will be room for some new buildings, including the two large science blocks (13) and the extensions to the arts faculty and library already planned by the university authorities. The Royal College of Music (14) will probably be rebuilt near its present site in modern form, as indicated. The rest of this area, grassed and planted, will barely suffice to give the old and new buildings a spacious setting.

A substantial area on the opposite side of Oxford Road (which is here to be divided by an island reservation 80 feet wide, forming an attractive main approach) has been allocated for major university extensions (15). It is suggested that part of this area, comprising six acres, should be reserved as a Roman Catholic ecclesiastical centre (16) incorporating the Church of the Holy Name.

Opposite this centre across the Inner Ring Road the proposed University Medical School (17) will link the main university extensions with the hospital centre to the south.

Recrossing Oxford Road, we come to a section between

the present university buildings and Whitworth Park which it is proposed to devote entirely to residential and recreational use. Around a broad central campus are disposed the private residences of the Vice-Chancellor, Bursar and Registrar, halls of residence (18), admirably situated for medical students working at the hospital centre, and various other buildings, including a physical education centre (19) for the use of both day and resident students. These in turn are surrounded for the sake of privacy by open spaces, generously planted and spaciouly laid out to give an uninterrupted view over Whitworth Park and its southward extension (20) from several of the residential blocks.

Immediately to the north of the University are grouped those municipal institutions of advanced education, existing and proposed, which would obviously benefit from such a close relationship. These are the School of Domestic Economy (21), School of Commerce (22), Institute of Adult Education (23) and School of Art (24), for which new sites will be required after the war, and a Central County College (25) to serve the inner city area. The college will be needed almost immediately and has therefore been placed where old residential property will soon be cleared.

This group should ultimately be completed by a College of Technology (26), but not until the present college and its projected extensions have become obsolete.

A permanent recreation space of 20 acres (27), set aside to meet the needs of this higher education group, will help to enhance the attractiveness of the cultural centre.

THE HOSPITAL CENTRE

A large area to the east of Oxford Road, extending from the proposed medical school southward to the Intermediate Ring Road, has been reserved for the development of a hospital centre. A site of some 13 acres within this area is already occupied by the Manchester Royal Infirmary (28). Mr. Hubert Worthington, architect to the Infirmary, has estimated that the areas marked (29) will be required for its future expansion. Adjoining it are two large special hospitals, the Royal Eye Hospital (30) and St. Mary's Hospital for Women and Children (31), both of which are structurally out of date. Plans have been made for the enlargement of the former; in place of the latter a modern building has been indicated, but further extensions will, no doubt, be required. An additional reservation (32) has been made to accommodate other special hospitals and medical institutions, not at present established in this area, which would have much to gain by association with those already in it, and which lack space for expansion on their present sites. A complete Nursing College (33) should also be included.

For a medical training centre the grouping outlined above would be ideal; but the zoning of a special area for hospital use offers still greater opportunities. On such a site it would be possible to build up a Manchester Federation of Hospitals, embracing the regional headquarters of every major branch of medicine and surgery, to which the

various general hospitals of the city and region could look for help, and to which any cases requiring special facilities could be transferred. Such a federation, while not attempting to treat any and every case referred to its various component institutions, would be so comprehensive in scope that every kind of treatment and investigation could be carried out—and taught—within its confines.

The difficulties in the way of bringing this greater conception into being are largely administrative. Could they be surmounted, Manchester would possess an unrivalled instrument for the furtherance of medical science and the health and well-being of its people.

THE SURROUNDING DEVELOPMENT

A project of this character clearly calls for more than ordinary care in the choice and design of the buildings to be erected in its immediate vicinity. The architectural dignity of the whole layout would be seriously impaired if it were not balanced by something more substantial than a scattering of small cottages on the opposite sides of Cambridge Street and Brook Street. The buildings that line these flanking highways should be designed both to serve as a frame for the precinct and to give their occupants the full benefit of the spacious prospect it affords. In particular, the west side of the proposed Cambridge Street continuation, overlooking the broad expanse of open space formed by Whitworth Park, its proposed extension and Platt Fields, might well become Manchester's "Park Lane", linked at its southern end with the "Mayfair" to be built in the Rusholme low-density residential zone. Such a development would do much to conserve and even bring back to the city the rateable values which in recent years have been passing to the dormitory towns of North Cheshire.

The use of the frontages flanking the cultural centre involves more than merely aesthetic and financial considerations. Here is an ideal opportunity for residential development of a kind in which Manchester has hitherto been altogether lacking, but which is essential to the full achievement of the cultural centre's purpose.

THE CITY CENTRE

Only one part of Manchester remains to be discussed: the roughly triangular section between the Victoria, London Road and Central stations. This small area—it covers less than a square mile—is something more than the heart of a great city. It is to this patch of ground that Manchester owes its standing as the virtual capital of the North-west, as the fifth largest port in England and Wales, as a financial centre second only to London in the whole United Kingdom, and as the most important market for cotton manufactures in the world.

What is it like, then, this central core which means so much to the city, to the region, to the country and to the world? What have we done, and what can we do, to make it fit for its functions, worthy of its status and capable of meeting the calls that must be made on its accommodation and resources?

Professional people, no less than industrial operatives, should have a chance to live within easy reach of their work. It is equally important that dwellings suited to their tastes and ways of living should be close to the cultural centre, and even more important that they should be within easy walking distance of one another.

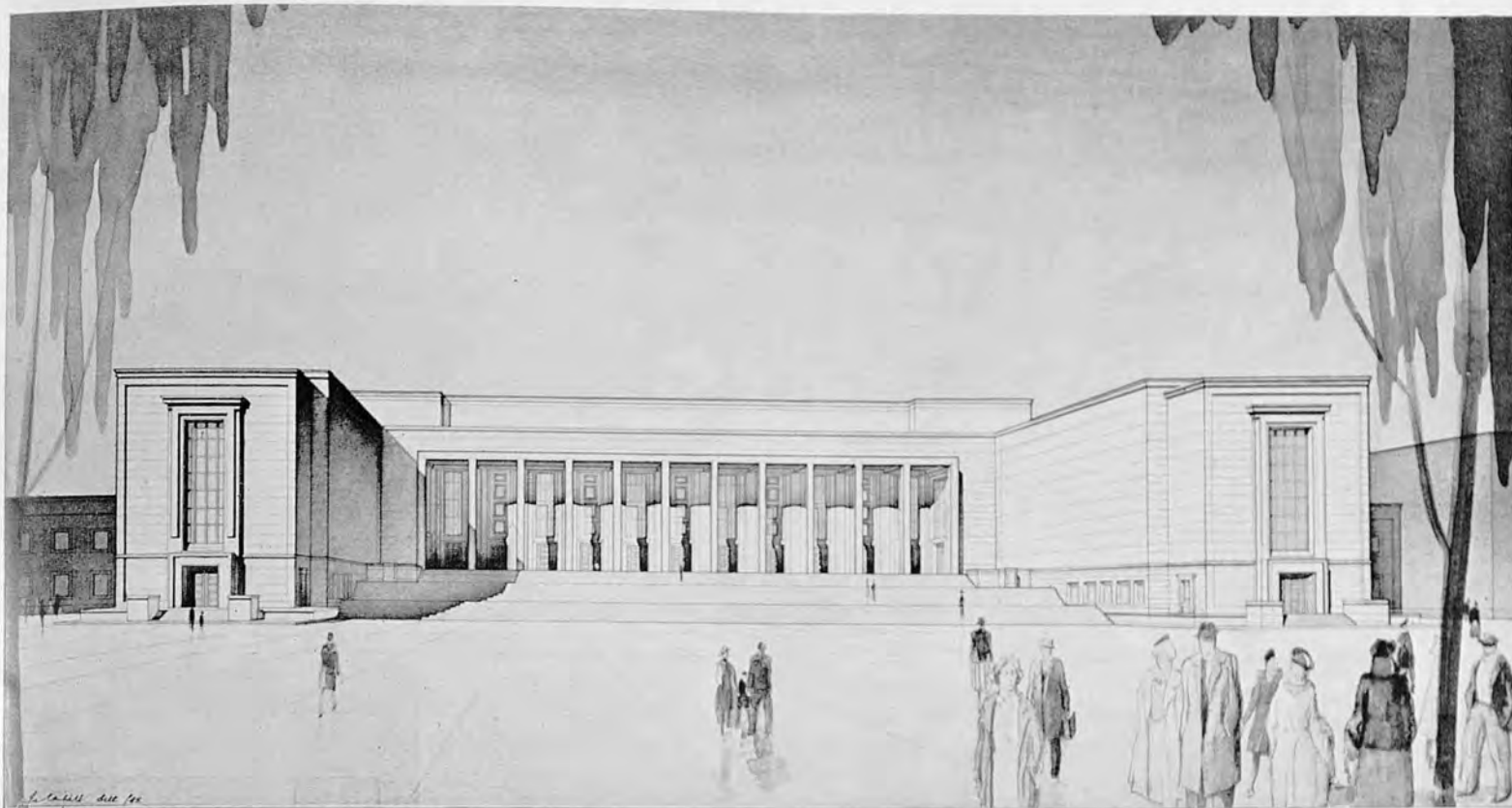
It is therefore proposed that in the areas immediately to the west of Cambridge Street and to the east of Brook Street (see Plate 14), Manchester's artists, writers, dons, students, Continentals, journalists, architects, actors, musicians, engineers, and others whose jobs or leisure interests link them with the cultural centre and the activities it fosters, should find dwellings designed to cater for their personal and professional needs. These should include a proportion of dwelling-houses of various sizes for families with children, but the demand for accommodation of this type among childless households will doubtless be smaller than in the average community. For the rest, in addition to large-roomed flats for single persons and childless couples, there should be a varied assortment of chambers, built along private walks or round secluded closes in the manner of London's Albany and the Inns of Court.

In such dwellings—just across the road from the cultural centre, hard by the University and its associated schools, within a stone's throw of the city's cafés, cinemas, libraries, clubrooms and professional quarters, and yet fully integrated with the neighbourhoods in which they stand—artists and professional people of every description would find congenial, appreciative and stimulating company and the kind of life for which they now forsake their home town and migrate to London. In such an environment cultural societies would flourish as never before, the arts of conversation and of civilised living would be restored to their proper status, and the words "Manchester School" might come to stand not only for a contribution to the development of economic theory, but also for a distinctive and significant forward movement in each of several fields of art and scholarship.

The scene in peace-time was one of bustling activity; but did the setting match the play? We have come to accept the background of our daily business without questioning the fitness of its too familiar features—the numerous traffic blocks during rush hours, wasteful of time, energy and substance; the lack of architectural form in the drab buildings fronting our main streets, each of a different style, width, height and ornamentation; and behind this motley façade a huddle of buildings where thousands spend their working days in cramped, dark and badly ventilated offices.

There are some fine buildings in Manchester, but most of them are screened or enclosed by others of an incongruous character. For example, the Cathedral and the adjoining Chetham's Hospital are mainly hidden and almost wholly marred by the surrounding structures.

Plate 21 opposite



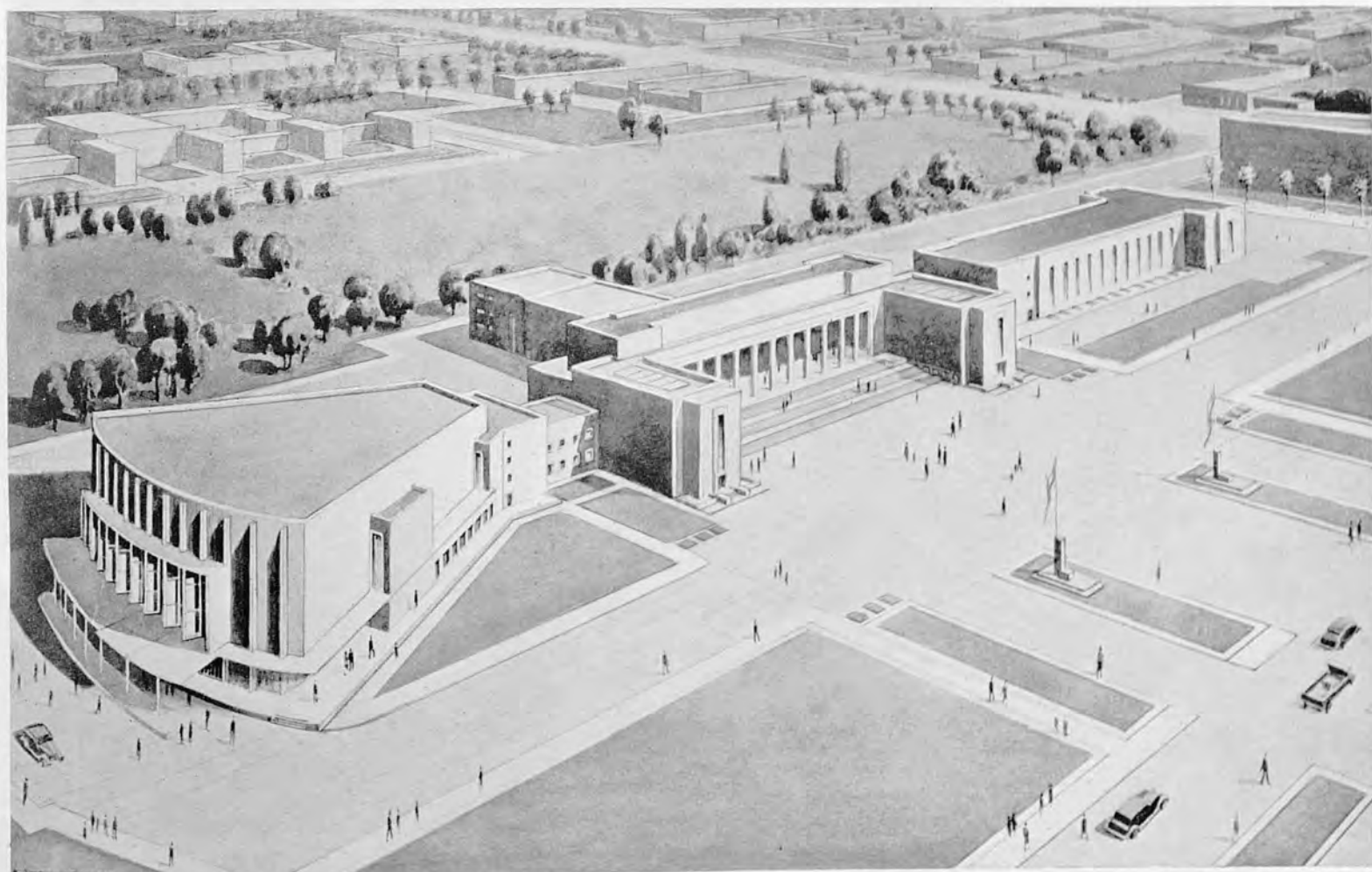
Drawing by E. A. Cohill.

THE CULTURAL CENTRE

The site for the proposed centre for cultural activities is at All Saints.

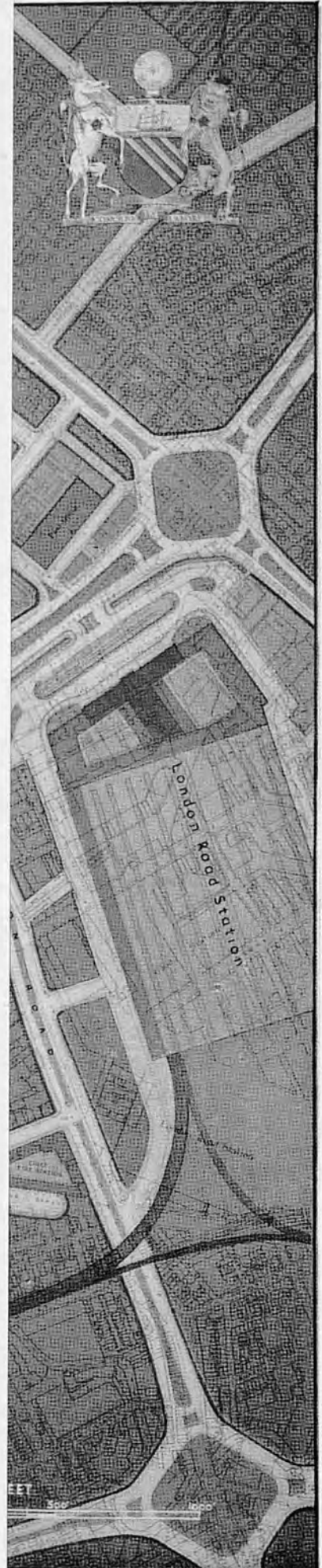
Above—The processional way on the line of the present Oxford Road will be terminated by the Civic Hall, containing records of the history and achievements of Manchester and its leading citizens.

Below—The main buildings, grouped about the Civic Hall, include the Concert Hall to the left and the City Assembly Hall to the right. Spacious surroundings provide a quiet and dignified setting.

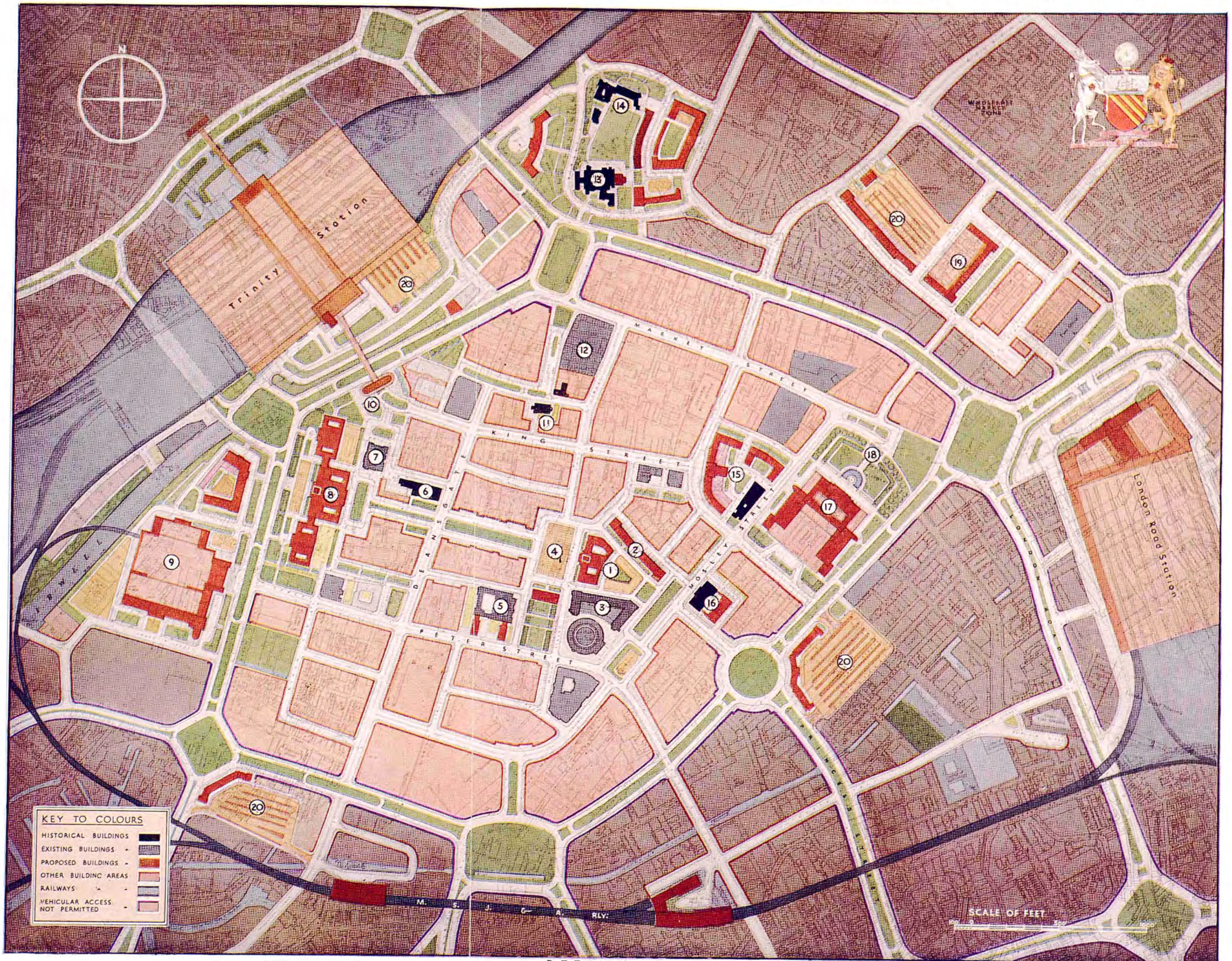


Drawing by A. Sherwood Edwards.

CITY CENTRE PLAN



19. RETAIL MARKET
20. BUS STATION



In no city is the establishment of some form of control over advertisements and neon lights more plainly needed. Before the war signs of all shapes and sizes straggled across adjoining shops, and street fronts which might otherwise have presented some semblance of architectural unity were broken up by innumerable projecting fascias of varying depths and heights. An assortment of garish posters on hoardings in all stages of disrepair inflicted themselves on the eye and mind in a confused and therefore ineffective jumble.

The centre of Manchester was developed largely at a time when land was considered far too valuable to be wasted on parks and gardens. In consequence there is hardly any open space in the central area apart from the gardens of St. Mary's Parsonage and Piccadilly. Only 5.5 of the 340 acres which constitute the inner centre are devoted to amenity purposes; in a wider area of nearly 1,100 acres, public open space accounts for a meagre eight acres. This lamentable deficiency not only hinders any effort to improve the city's appearance but also deprives the city worker of any chance to spend his lunch-hour outdoors in pleasant surroundings. Yet this overcrowding of ground space is not economical even in the narrowest sense, for the methods of construction used in the nineteenth century restricted the height of buildings to such an extent that an equal or even greater capacity of floor area could now be secured by redevelopment on far more spacious lines.

The greater part of any projected improvement can only be accomplished in the normal course of events when the buildings concerned have ceased to serve their purpose efficiently. Comprehensive schemes on the scale advocated for residential areas are clearly out of the question: the problems involved are too complex and the monetary commitments entailed would be too vast to be entertained. However, the task divides itself into several clear-cut phases: first, the provision of such highways as are essential to ease the flow of traffic; second, the definition of zones into which buildings used for specific purposes may be grouped as their reconstruction becomes necessary; third, the improvement of passenger transport facilities by rail and road; and fourth, the establishment of certain focal points which would give coherence and architectural balance to the city centre and by their example raise the standard of quality in all forms of development.

THE CITY CIRCLE ROAD

Probably the most urgent post-war need, after an alleviation of the present housing shortage, is the relief of traffic congestion in the city centre. The problem is two-fold: to divert through traffic from the central area and to clarify its internal road pattern so that it can accommodate the ultimate increase in the number of vehicles having legitimate business within its limits.

Our remedy for the problem of through traffic must be such as will leave the greater part of the city centre undisturbed, and one which can be quickly carried out.

Obviously, a scheme which takes the fullest advantage of the scattered damage done by the 1940 air raids will have much in its favour from both points of view. A number of solutions have been considered, but that of providing a City Circle Road, as shown on the City Centre Plan, is the one scheme which will satisfy all requirements. Of course, any highway proposals for the central area must necessarily affect some valuable properties, but the number which would have to be removed to make room for the City Circle is remarkably small in relation to the size and value of the scheme.

The building of this road will postpone the need to undertake other road improvements within the area it encloses until the property affected is ripe for redevelopment. The full significance of this fact should be emphasised. This one road would appear to provide the means of deferring, until convenient, improvements which will be both costly in the extreme and damaging to the business life of the city unless they are undertaken gradually and in the normal course of redevelopment. Without it, on the other hand, many such improvements would have to be rushed through at once—and with less satisfactory results, for they would not bring about the circulatory traffic movement which is essential at the hub of the radial road system.

As the City Centre Plan makes clear, each section of the City Circle is continued directly as a major radial road. It needs little thought to appreciate the immense effect which this straight-line linkage of radial routes will have on the movements of through traffic. In fact, the City Circle is not so much a hub as a series of by-passes through which traffic will slip past the inner centre.

This City Circle Road will also furnish a valuable amenity. For it is clear that a large volume of its traffic will be constantly turning to right or to left, and unless the largest vehicles are enabled to turn without checking the flow of traffic the carrying capacity of the road will be seriously reduced. It is therefore suggested that its two carriageways should be divided by a central reservation not less than 48 feet wide—the turning-circle of a bus—at the points where traffic will be permitted to turn, and this central reservation can be planted with trees and shrubs grouped and massed for decorative effect. The overall road width required—120 feet—is not extravagant, for if the central reservation were reduced extra traffic lanes would be needed to compensate for the reduction in capacity caused by vehicles turning across the main streams. In any case, modern methods of construction will enable the loss of land value to be recouped, for the wider space will make it possible to erect taller buildings alongside it without loss of daylight in their lower floors.

INTERNAL ROADS

Although the completion of the City Circle Road would obviate the necessity for any immediate road widening in the inner centre, the tangle of criss-crossing streets should certainly be rationalised as normal redevelopment takes place. There can be no orderly movement of traffic

in the inner centre while the present street pattern remains. There can be no proper presentation of the architecture of our new buildings until certain streets are emphasised in line and width, while many others will no longer be required when development is based on the comprehensive use of modern building techniques.

The primary purpose of the road layout in the inner centre must be to safeguard the efficacy of the City Circle Road in diverting through traffic. However attractive this road may be made, it will be apparent from a glance at Plate 22 that a direct route from, say, the Cambridge Street and Princess Parkway extensions at Gaythorn to the roundabout at the Victoria Buildings site would lead all north-and-south traffic across the centre through Albert Square and into the western end of the Market Street shopping area. Similarly, traffic going east and west would cross the city centre if the route by way of Princess Street, John Dalton Street and Bridge Street remained available. The road plan within the City Circle must accordingly be so arranged that no approach road is continued across the inner centre.

KING STREET

As part of the main internal road system it is proposed that King Street be extended towards the suggested new Trinity Station (see below), joining the City Circle Road at a suitable distance from the New Bailey Street junction. Here it should be bridged by a pedestrian way giving access across the City Circle to Trinity Station (see City Centre Plan and Plate 24, facing page 51). The visitor entering the city centre along this road would be confronted with a splendid easterly vista through a widened Lower King Street and along the gradual rise of Upper King Street, closed at its junction with Spring Gardens—the highest point within the City Circle Road—by a tower building symbolising Manchester's commercial pre-eminence.

It is freely admitted that the widening of Lower King Street—the Bond Street of Manchester—would be regrettable, for it would destroy the quiet character and restful proportions of this delightful old thoroughfare, ideally narrow as it is for shopping purposes. Needless to say, every endeavour has been made to find some alternative that would leave King Street undisturbed, but it simply cannot be done without infringing the essential principle that direct traffic routes across the city centre must be barred. Lower King Street must in any event be rebuilt in a comparatively short time, for most of the property is old, inconvenient and in poor condition.

From the tower closing the King Street vista a widened Spring Gardens swings south-eastwards by way of Charlotte Street to the City Circle Road and northwards across both Market Street and the City Circle to Withy Grove, Corporation Street and Shudehill. It would thus form the main road access to Market Street, whose approaches would be arranged to encourage only traffic having business in the shopping area. A further connection between King Street and Market Street is proposed in the form of a widened Cross Street, but southwards the latter

should be kept narrow so that the quiet civic character of Albert Square may be re-established; the southern end of Corporation Street should be closed so that traffic movement at this now overburdened junction may be properly controlled.

The through use of Deansgate should likewise be limited by closing its northern end near the Victoria Buildings site in the manner shown on the City Centre Plan. At its southern end Deansgate is interrupted by the central reservation of the City Circle Road, with vehicular access beyond to Knott Mill Station.

Quay Street, from its junction with the City Circle Road, is retained as a major internal road, continuing through Peter Street and Oxford Street to link both the exhibition hall and the cultural centre with the heart of the city. The principal remaining roads are: Mosley Street and its proposed continuation, connecting Deansgate with St. Peter's Square through the Central Station site; a short length of Princess Street, connecting Mosley Street with the City Circle but not continuing westwards as a principal road; and a further short new section of road connecting the Mosley Street continuation with the junction of the Cambridge Street and Princess Parkway extensions.

THE CENTRAL ZONES

The character of our city-centre layout must be largely governed by the proportion of its limited ground space which will have to be occupied by buildings of various kinds. That in turn depends on the floor areas required and the types of building erected for various purposes. Most of the existing buildings conform in size and shape to the mosaical pattern of site ownership into which the area has been split up over the last two centuries. No real improvement will be possible while that pattern remains. On the other hand, if here and there sites are amalgamated and huge buildings erected, covering every square foot of the available ground and completely overshadowing adjacent properties, the advantage to their owners and occupiers will be balanced by a premature collapse of the value of their older neighbours. Sooner or later, if this were allowed to happen, the older properties would be abandoned and left derelict, for their capacity would be redundant and their redevelopment no longer worth while. In the end we should be left with a number of huge new buildings, haphazardly sited and inadequately served with means of approach, planted in a welter of useless decrepitude.

These dangers point the need to assess how much accommodation will be required in the future, to determine how capacious new buildings must be in relation to their site areas in order that this accommodation may be evenly distributed throughout the centre, and then to interpret this relationship in terms of standards regulating height and site coverage. Thus in due course the whole area may be renewed and no patches of blight and decay remain. At the same time we must endeavour to ensure that good daylighting conditions may be available in all working rooms and that each building may be readily accessible,

with sufficient room around it for car parking and for borders of grass and shrubs. Given these conditions our architects will have every opportunity to shape each new building in an open setting where the citizens of to-morrow will be able to see and admire it in its entirety.

Before any zones could be set aside as sufficient for particular requirements, therefore, it was necessary to make sure that these better conditions could be combined with capacity standards that would yield the necessary accommodation. For this purpose the possibilities of modern methods of framed construction for office buildings were investigated in parallel with the application of certain standards of daylighting recently established by original research in the National Physics Laboratory. This investigation showed that a much greater ratio of floor space to site area could easily be obtained, together with ample space between buildings for car parking, daylighting and amenity purposes, and with an encouraging return on the capital invested, if office buildings were generally erected to a height of about ten storeys and to

a much greater length than has hitherto been customary.

It is undoubtedly most desirable that the zoning scheme for the city centre should make possible, as opportunity serves, some sorting-out of the present indiscriminate mixture of development and some improvement in the grouping of buildings used for similar purposes. At the same time it would be foolish to attempt a rigid segregation whose enforcement would entail high compensation payments and might soon have to be abandoned on financial grounds. The zoning scheme must allow considerable elasticity, permitting the less harmful mixtures of uses to remain—unless, of course, the owners themselves decide that re-location would be desirable in their own interests. It should define the business, civic, distribution, entertainment and shopping areas, but should give the planning authority discretionary powers enabling it to accomplish as much of the desirable regrouping as available finances will permit at any given time, while ensuring that really harmful uses are eliminated as occasion arises and that conditions do not become worse than they are.

TRANSPORT

RAILWAYS

The present time appears to be opportune for a thorough reconditioning of the rail transport "system" brought into being by the independent action of competing promoters. Some station buildings have suffered heavily from enemy action; elsewhere redundancy and obsolescence cry out for remedial action as part of a plan to renovate the city's structure, embodying all that still fittingly serves the community's needs.

Manchester serves a regional population of 1,250,000 residing within a five-mile radius of its centre, and of over 2,500,000 within a 12-mile radius. For much of their shopping, business, education, entertainment and recreation, these people travel in and out of the city, using four main-line terminals and two district stations within the commercial centre.

In addition to this daily ebb and flow there is a considerable volume of passenger traffic that enters Manchester by one radial route and leaves by another. In the absence of direct rail links (except between Victoria and Exchange) passengers must make their connections either by bus, by taxi, or on foot. This deficiency has for years been the subject of public comment and has prompted much thought about underground railways.

It has been found, however, that the probable traffic and revenues from a population of the size to be served in Manchester would not be sufficient to enable a tube system to be constructed and run except at a continuing loss on the very heavy capital costs involved. Moreover, the construction of tubes could have no appreciable effect on road proposals. In 1939 buses formed some 18 per cent of the traffic on the principal roads in the central area; but whereas commercial vehicles and private cars are expected to increase in number twofold in the next 25 years, the increase in the number of buses will be much less. Conse-

quently the proportion of bus traffic (that is, of potential tube traffic) in the central area will probably drop to ten per cent in that period.

The other purposes for which a tube system has been advocated can be attained just as effectively, and at far less cost, by the linkage of existing surface lines.

TRINITY STATION

It is suggested that a new main station (in this book referred to as "Trinity") should be built between the existing Salford and Exchange stations, with entrances from both Salford and Manchester (see City Centre Plan). Such a scheme would make it possible to remedy most of the deficiencies in the existing passenger railway system, while using to the utmost the capacity of the existing network of surface lines to serve the central area. The Trinity site would be well served with road communications from both Manchester and Salford. The generous site area could accommodate car parks on both fronts, a bus station serving both cities, and a parcels and mails sorting office with independent road access.

An approach from the higher ground on the Manchester side spanning the City Circle Road and the station forecourt would give direct access for pedestrians at platform level into a concourse directly serving the suburban lines, which might, with advantage, be grouped to ease the dispersal of suburban passengers at rush hours. By segregating pedestrian passengers from those requiring car, taxi, or bus transport, this arrangement would make the flow of pedestrians into the central area safer as well as more rapid.

Plate 24, facing page 51, shows what an impressive contribution the suggested station could make to the reconstruction of this part of the city.

Trinity would combine the main-line functions of

Victoria, Exchange, and Salford stations. A comparatively short length of new viaduct across the River Irwell from the existing Cheshire Lines viaduct between Cornbrook and Castlefield would bring in the main-line services now terminating at Central Station, linking them with the network converging on Victoria; this would facilitate the through running of trains between Liverpool and Hull, and between Trafford Park and the north-western, northern and eastern parts of the region.

LONDON ROAD

A suitable connecting curve from the Ordsall Lane and Castlefield Junction branch of the M.S.J. & A. line through Knott Mill and Oxford Road would link the new station with London Road; this would enable the electric service from Altrincham via Old Trafford to operate both into the suggested Trinity Station and into London Road, and thereafter to continue out to serve the suburban districts to the east and south-east by the routes diverging from London Road. The main-line terminal facilities of London Road could also be incorporated in Trinity Station by means of another link from the present viaduct at Fairfield Street to the existing line in Victoria Station by way of an arc passing near New Cross north of the city centre. This would involve some tunnelling and viaduct construction.

London Road Station would, in any event, be retained in part for suburban services. If it is also retained for main-line services it should be rebuilt nearer to the city centre. A site can be provided to give a spacious forecourt fronting upon Portland Street extension and flanked by London Road itself and by the Inner Ring Road at Great Ancoats Street (see City Centre Plan). The terminus of the Altrincham line should be incorporated in the main station, giving platform interchange with main-line trains and delivering suburban passengers direct to the main concourse. The functions of Mayfield should also be transferred to the rebuilt main station; the suggested site could be made of adequate dimensions to provide the requisite facilities.

Victoria Station might advantageously be retained in part and modernised to accommodate the heavy influx of city workers to the Corporation Street and Royal Exchange areas. For this purpose fewer platforms would suffice. Exchange Station and Salford Station would become redundant; so too would Central Station when the suggested linking viaduct became available.

The present inadequate buildings at Knott Mill and Oxford Road should be replaced by modern stations to serve the civic and cultural centres. These proposals would bring nearly all of the central area within three-eighths of a mile of at least one station, from which any of the routes out of the city could be gained with, at the most, one platform interchange.

GOODS TERMINALS

Manchester's ascendancy as the commercial centre of Central and South-east Lancashire has been greatly

facilitated by the comprehensive network of lines connecting it with the country's ports, manufacturing towns and food-producing areas. The prospect of sharing in the transport of so large a volume of commodities led to the construction of no less than eight principal goods terminals in the central area. In addition a large number of smaller goods and mineral yards were interposed at intervals based on the effective delivery radius of horse-drawn vehicles.

No specific delivery areas appear to be allocated to the central terminals; each serves the whole area in respect of traffic originating from, or destined for, the geographical region reached by its section of the main-line network. The goods carted through the city streets between these terminals, for transference from one network to another, are estimated to average some 400 tons a day.

The major problem is clearly that of reorganising the distribution and collection services within the city so as to reduce street congestion as far as practicable. It must be remembered, however, that the movement of goods represents the life-blood of Manchester's warehousing, distributing and export trades, and is in consequence at least as important as the convenient movement of private cars and buses.

The unification of the hitherto separate rail systems and the improvement of pre-sorting facilities would remove the need for the present concentration of goods terminals in the central area. Goods stations do not readily lend themselves to compact site planning, owing to the large amount of space required for shunting operations, and more adequate sites can be provided in the area between the Inner Ring Road and the Intermediate Ring Road. The very desirable object of separating the functions of goods and passenger terminals would, at the same time, be realised, and the converging rail approaches to the latter would be freed for the expeditious handling of passenger-train movements.

It is accordingly proposed that two new major terminals, one to the west of the city and the other on the east side, should replace and combine the functions of all the existing facilities except those at Oldham Road.

The westerly site lies within the city of Salford, between Oldfield Road (as incorporated in the Inner Ring Road) and Cross Lane, and between Regent Road and Broad Street. This area already accommodates a group of goods yards and cattle sidings. A suitable building depth on Cross Lane, Regent Road and Oldfield Road could be reserved for commercial purposes, including the resettlement of certain undertakings at present dispersed over the site. This screen of buildings might also include warehousing accommodation to provide rail-head storage and regional distribution depots for manufacturers in other parts of the country, thereby facilitating bulk conveyance by rail.

The western terminal would be easily accessible by way of ring and radial roads. A direct rail link with the suggested new easterly terminal at Ardwick is available in the line from Ordsall Lane to Knott Mill and London Road. A new branch line connecting with the suggested new

viaduct from Cornbrook to the proposed Trinity Station would direct traffic over the Cheshire Lines system into the new terminal.

The eastern proposal is that the existing group of goods yards at Ardwick be reconstituted as a single major terminal served by the Inner and Intermediate ring roads, and by Ashton Old Road and Hyde Road. This Ardwick terminal could ultimately be enlarged so as to accommodate the functions of the existing terminals at Ducie Street (adjoining London Road) and Ancoats. Here again the goods station might be screened by warehousing for rail-head storage by private traders.

A connecting curve between the Stockport-Droylsden line and the Manchester-Hayfield line, east of Reddish (North) Station, would bring freight traffic from Stockport and Crewe into the Ardwick terminal.

The Railways Liaison Committee has under consideration a scheme for dividing the city area outside the Inner Ring Road, together with the contiguous parts of the region, into five sectors, each with its own sorting depot for locally based distributing services. Between these sub-depots and the appropriate main terminal pre-sorted goods could be conveyed in bulk by large-capacity motor vehicles, which would reduce the number of cartage units operating on the roads and also simplify the work of the main terminals.

Possible sites for the sub-depots are the present stations at Longsight, Newton Heath, Crumpsall, Brindle Heath (Salford) and Old Trafford (Stretford) which are situated near to the Intermediate Ring Road.

A similar system of concentration points is being considered by the railway companies for the outer regional areas, with a main station (to be sited on the north side of the Manchester region) to deal with the sorting and forwarding of traffic over the several regional railway networks, thus further relieving the central terminals.

BUS SERVICES

The recent rapid increase in the number of buses operating in the city centre has made it necessary to establish main terminal stations. The Parker Street bus station, Piccadilly, was opened in 1931 and completed in 1935. It was proposed to construct a second terminal on space to be obtained by covering the River Irwell between the Cathedral approach and the junction of Chapel Street and Victoria Street, but this project was deferred by the outbreak of war.

The present position can hardly be considered satisfactory. Parker Street, now used by as many as 1,000 buses daily, is heavily over-loaded; the proposed Irwell station would bring some small relief, but it would not supersede the use of roadside terminals at which even the minimum facilities for intending passengers are not available, and which give rise to considerable congestion both of vehicles and of pedestrians.

In developing the Plan the problem of road-passenger transport has been constantly borne in mind. Future bus

routes and terminal stations have been planned in relation to the capacity of the new highway system and the layout of shopping, amusement and other centres; the number of buses per hour during normal and rush periods has been estimated for each route. The detailed proposals have been governed by certain basic requirements:

- (a) The central terminals should be conveniently close to the shopping and business zones and to the railway terminals.
- (b) Passengers should be able to alight from, or board, their buses in the central area at conveniently sited stopping places.
- (c) Roads in the central area should not be overloaded; the maximum flow at any point should be limited.
- (d) The routing of buses should be flexible so that it may be changed to suit varying conditions and circumstances.

To meet these requirements two interlocking systems are planned: the normal all-day service, estimated at 475 vehicles per hour, and the supplementary rush-period service (approximately 8 a.m. to 9 a.m. and 5 p.m. to 6 p.m.) of a further 475 vehicles per hour.

The **Normal Service** on each route (except for a few through routes linking North and South Manchester) would terminate at one of two main bus stations on the City Circle Road at opposite sides of the central area. Each bus would normally pass through the central area to the terminal farthest from its point of entry, so as to give every passenger the chance to alight near his destination. Routes should be so distributed that congestion in any one street is avoided.

Outer-district and long-distance buses would use the terminal nearest to their point of entry, so that short-distance passengers could not fill them up as they passed through the city centre. Since the bus stations will be linked by local services, long-distance passengers could go by bus from any part of the centre to the appropriate station; the small inconvenience entailed would be compensated by the certainty of getting a seat for the longer journey.

It is proposed that one of the two main bus terminals should be sited on the eastern fringe of the city centre immediately north-east of the junction of Portland Street and Princess Street; the other, on the west side, would form part of the suggested Trinity Station and would take the place of the projected Irwell terminal (see City Centre Plan).

The first is a blitzed site; construction could therefore be undertaken at an early date. It is well placed in relation to the amusement centre along Oxford Road and also to Piccadilly; being only 400 yards from the Town Hall, it would also serve a large proportion of the workers employed in the central area. This terminal would supersede the present Parker Street bus station, which is unsightly, interferes with the full enjoyment of Piccadilly Gardens, and sterilises a large area which could be used to greater advantage.

The second main bus terminal would be reached either by the pedestrian bridge over the City Circle Road from

the bottom end of King Street or, at the lower level, from the City Circle Road itself (see Plate 24, facing page 51). Escalators from the bus station to the level of the railway platforms and pedestrian way would give direct interchange with the railway service. Complete cover for passengers would also be provided. The layout of the station approaches would allow an easy flow of bus traffic to and from the City Circle Road or into Salford. If the Salford bus station were located on the other side of Trinity Station, rail and bus traffic would be still more closely linked. The two bus stations could be directly interconnected by a roadway under the rail platforms. In contrast, the Irwell site offers only a restricted area with poor road access from Victoria Street at a point where the Cathedral makes further widening impossible, and where turning buses would further confuse an already complicated traffic situation. The covering of the Irwell at this point is still recommended, but as part of the scheme for improving the Cathedral's setting.

The **Rush-hour Service** presents a different problem. Although the normal-service buses will continue to pass through the central area, intending passengers will prefer to board at the terminals, whose number and location should therefore be such that no worker has far to walk to reach one. Accordingly, two further bus stations for rush-hour use are planned to cover the northern and southern sectors of the city centre. These might serve as parking-stations for buses not in use during the remainder of the day. The first is sited between Thomas Street and Smithfield market and the second on the south-east corner of the Liverpool Road and Lower Byrom Street junction (see City Centre Plan).

The Thomas Street site would be only 300 yards north of Market Street and the Liverpool Road station only 400 yards south of Peter Street. As the property on both sites is in poor condition and of considerable age, the construction of these terminals could be put in hand in the early post-war years.

It is suggested that another small bus station, to accommodate about ten vehicles, should be incorporated in the layout of the new London Road railway station approach. Planned primarily as a calling-point on many routes, it would no doubt serve as a terminal in certain instances.

At the present time part of Stevenson Square is utilised as a terminal for about 40 per cent of the vehicles on the trolley-bus system, the remainder using street loading points. The trolley-bus system is, and probably will continue to be, confined to the northern and eastern districts of the city; it is therefore suggested that a new trolley-bus station should be incorporated in the proposed northern rush-hour station at Thomas Street. Here it would be possible to provide adequate waiting-room accommodation, cafeteria, staff rooms, etc.—essential services none of which exists at the present trolley-bus terminals.

Whether the trolley-bus is suitable for operation on the highways of the future (whose road widths and large traffic islands would presumably necessitate the provision of

unsightly central as well as side supports for its overhead equipment) raises a larger question. Obviously any authoritative statement on this point is beyond the scope of this Plan, but the effect of our transport system on the amenities of the city must not be overlooked.

THE AIRPORT

Of all the prophecies which the planner is called upon to make, none is more hazardous than to predict the future of air transport. American technical journals are discussing the possibility of auto-aircraft (winged automobiles); the potentialities of rotor aircraft appear to be unbounded; jet and rocket propulsion are in their infancy. We may therefore have to reckon a few years hence with an extensive use of air liners, with air taxis stationed on flat-roofed buildings, and with folding-winged autoplanes housed in private garages. On the other hand we may find the previous rate of technical progress only slightly accelerated by the stimulus of war. But whatever the future holds we can regard the possession of one major airport as essential to the prosperity of Manchester.

The area available and suitable for airport purposes at Ringway can be extended to a limit of about 1,355 acres—amply sufficient to accommodate a transcontinental airport with a main runway of 3,200 yards and subsidiary runways 2,500 yards in length. (In fact, an intercontinental airport could be accommodated if this were found to be desirable. Certainly the reservation of the land which would be required for this purpose must be regarded as a wise precaution.)

Ringway Airport will be only eight or nine miles from the city centre by the direct route along Princess Parkway—a matter of only 15 minutes by car. Such quick access is hardly likely to be equalled in any other regional centre. At the same time the Outer Ring Road will afford rapid communication with other parts of the region.

An impression of the airport as it may well appear in the future will be found on Plate 24, facing page 51. The illustration shows five loading points (the number required to develop full runway capacity) from which passengers could enter the planes under cover. These covered ways, which might be of the telescopic type, are shown leading to a wide, two-storey passageway connected with the passenger concourse, which would house the Customs Office and such facilities as a restaurant, small shops, and waiting-rooms. The main administrative offices would be grouped round this concourse, while the control room would be housed in the top floor, from which an uninterrupted view could be obtained in all directions. Electric trolleys would carry passengers and luggage quickly along the passageway, at the ends of which would stand warehouses in which goods might be repacked for transshipment. A modern airport of this size would also need considerable hangar accommodation, space for fuelling and servicing aircraft and a rotor park for helicopter landings, as well as a large hotel and dwelling accommodation for members of its staff.

CIVIC BUILDINGS

So far we have worked on utilitarian principles with the object of ensuring greater efficiency and orderliness. However, this alone is not enough. If we are to have a city worthy of its people and of the promise of the age, then in those aspects of the Plan which are essentially the concern of the community as a whole we must strive for the highest ideal that seems attainable.

THE CATHEDRAL PRECINCT

Manchester Cathedral occupies an island site surrounded by roads. The east side is masked by the Corn Exchange on the opposite side of Cathedral Street. The south side is also screened by buildings. Only the west side is entirely open, and this abuts on Victoria Street, a heavily-trafficked main road. To the north Chetham's Hospital and Library are separated from the Cathedral by Fennel Street, which is also a busy highway, serving mainly as a direct connection between Shudehill and Chapel Street, Salford. Chetham's is also hemmed in by buildings to the north, east and west.

The Cathedral was severely damaged in an air raid in December, 1940. The mediaeval Lady Chapel disappeared; only the arch leading to it and parts of its beautiful screen remain. Here is a great opportunity. The Dean and Canons hope to be able to build a stately Lady Chapel for the more intimate services, to seat about 60 people. This building, designed by Mr. Hubert Worthington, with a Children's Chapel on the south and a much-needed vestry on the north, would make an important feature. The Cathedral has always been too square in shape, and a bold extension, with long, low lines leading the eye gradually upwards to the higher mass, would considerably enhance its composition.

Chetham's Hospital and Library were founded by Humphrey Chetham in 1653. The library, which was probably the first free library in Europe, contains over 100,000 volumes and many valuable manuscripts. The school provides free maintenance, clothing and education for 90 boys and has been administered on the same lines since its foundation.

It is a tragedy of present-day Manchester that the two historic buildings of which it can boast are spoiled by their surroundings. It is the concern of every citizen that this area should be fittingly redeveloped as an ecclesiastical centre and endowed with an atmosphere of peace and tranquillity, contrasting with the busy life of the neighbouring business quarter.

The highway proposals, including a diversion of Victoria Street by way of New Bridge Street and Victoria Bridge Street (as shown in the City Centre Plan) will make it possible to divert all through traffic away from the vicinity of the Cathedral. The entrance into the precinct from the north-west roundabout would be open to vehicles only on ceremonial occasions; normally the Cathedral would be approached by an internal loop road connecting with Corporation Street to the east and with Great Ducie Street to the north-west, and following

approximately the line of Victoria Street, Cathedral Yard, Hanging Ditch and Walker Croft. This loop road has been planned to allow ample room for greensward and trees. The buildings in front of Chetham's would be removed and a grassed bank formed to the old courtyard level. The area between the Cathedral and Chetham's would be laid out as a large grassed court, closed on the far side by a new two-storey building of suitable architecture; this extension could be used either by the school or for ecclesiastical purposes. The River Irwell would be covered over to form an ornamental garden west of Victoria Street.

It may be a long time before the Cathedral precinct can be realised as a whole, because much of the surrounding property still has several years of useful life. But this is a scheme that may well be considered worth waiting for and striving for.

THE LAW COURTS

At a conference between representatives of the various authorities and interested bodies held in November, 1941, a resolution was adopted agreeing in principle that the courts of law in the city should ultimately be grouped together. Since then a sub-committee has been considering the administrative and financial problems involved.

The City Centre Plan shows a layout for the combined courts of law on a site of 8.8 acres between Deansgate and the River Irwell, bounded approximately by Gartside Street, Quay Street and Bridge Street. Two acres have already been cleared of buildings and a large proportion of the remaining area is occupied by very old dwelling-houses subject to early clearance. This site is conveniently situated for both Salford and Manchester and ideally related to the other proposals for the central area. It is bounded on the west by the City Circle Road and a large roundabout, whose width would give the law courts a splendid open setting and incidentally would make it possible to reduce the area which would normally be needed for such a massive group of buildings.

The composite structure indicated on the cover of this book is based on a tentative design by the City Architect and consists of three main parts. The central block with its tower would accommodate the Assize Courts, the Palatine Chancery Court and the Salford Hundred Court of Record, together with ancillary facilities such as a library, reading-room, rest-room, and dining-room for members of the legal profession and their staffs. This is the most urgently needed accommodation and would be constructed first. One adjoining wing would contain provision for the Manchester City Magistrates' Courts, including the Juvenile Court, and also for the Coroner's Court and Quarter Sessions. The remaining wing would meet the requirements of the County Court and the Manchester County Magistrates' Court. All these buildings would normally be entered from Deansgate and Quay Street, but for ceremonial occasions access would be available from the City Circle Road.

THE EXHIBITION HALL

Opposite the law courts and terminating the vista from Peter Street and Quay Street a site of 13 acres has been reserved for an exhibition hall which would rival London's Olympia or Earls Court. Existing facilities for trade exhibitions are totally inadequate to meet the needs of the regional centre of so important an industrial concentration. The proposed site is near Trinity Station and would have excellent road communication by way of the City Circle Road. It would also be possible to provide direct rail access to the site for goods traffic by a bridge over the Irwell. The site to the north would be ideal for a large hotel. The river bank behind should be treated as an ornamental garden. Northwards from this point the Irwell would be covered over to make room for the proposed traffic roundabout and part of the approach system to Trinity Station. This whole area from Grape Street northwards is obsolescent and ripe for immediate redevelopment.

It is suggested that the law courts, exhibition hall and Trinity Station proposals would transfigure the derelict area along the boundary of Salford and Manchester; the station would span the obstruction of river and railway viaduct which has so disastrously divided the two cities in the past and thereby encourage development of a valuable character on the Salford side of the border.

THE CIVIC CENTRE

Taking into account the law courts proposal, the most satisfactory of the many suggestions for giving Manchester a more impressive civic centre is the pre-war project of a ceremonial approach from Deansgate to Albert Square. The form of this proposal has been modified somewhat: as will be seen from the City Centre Plan, the present scheme envisages the incorporation of Brazennose Street, Queen Street and the properties between into a wide formal avenue with a broad central reservation.

The proposal assumes that Albert Square will ultimately be relieved of through traffic and revert to its proper use as a setting and approach to the Town Hall. It should also be extended southward to meet Peter Street and partially divided into two distinct squares, each of good architectural shape, by a building opposite the Town Hall extension. Thus the South Street police station would face the Central Library across an open grassed area. The Art Gallery should terminate a northward extension of St. Peter's Square giving access to an open grassed court at the rear of the proposed civic group.

The Town Hall, Town Hall extension and Central Library together present a difficult problem. It will not be long—in fact offices are needed now—before the corporation will be compelled to embark upon the building of a further Town Hall extension. The property on the north side of Princess Street facing the Town Hall will probably be found to be the best site. It may be that the corporation will consider it wise to erect here a building with a capacity beyond immediate needs in order to secure economies in floor-area cost, and also in order that a

further extension may not have to follow at too short an interval.

So far as the Town Hall and its present extension are concerned, a possible solution would be to remove the Town Hall and substitute a civic building of smaller dimensions, possibly of the shape shown on the City Centre Plan. This would not overshadow the offices in the Town Hall extension and would leave room for a car-parking space which would be particularly useful on ceremonial occasions. Such a building might have more accommodation for purely civic purposes than exists in the present Town Hall, as well as the office accommodation required by the Town Clerk and his staff, leaving the other corporation departments to be housed in the two extension buildings, which would be linked with it by overbridges across the intervening streets. Another solution would be to remove the Town Hall extension in some 80 years' time and leave the Town Hall in an open setting.

PICCADILLY

It will be seen from the City Centre Plan that the junction of Church Street and Portland Street at the north-eastern roundabout on the City Circle Road will necessitate the closing of Market Street at Piccadilly Gardens. In any event the closure is specifically advocated as a means of keeping out through traffic and thereby securing conditions under which shopping can be done with safety and convenience.

Plate 23 shows a photograph of Piccadilly as it was in 1939. Its gardens then formed the most attractive feature of the city centre, and one whose popularity was limited only by its restricted size. The extensive clearance of property to the south, resulting from damage by enemy action, has provided an opportunity to enlarge the gardens.

Farther south, in the area contained by Portland Street, Charlotte Street, Mosley Street and Parker Street, an amusement centre is suggested. The site can be easily reached from either of the two main railway stations and is close to the proposed bus station at the corner of Portland Street and Princess Street.

The buildings might incorporate a cinema, a theatre, dance halls, a skating rink, a boxing stadium, restaurants, buffets and a variety of other types of entertainment. They could form a comprehensive scheme in combination with the gardens, which might well contain a fountain display, flood-lit at night, and trees festooned with coloured lights. Piccadilly is the people's place of Manchester; it will repay any enlargement and improvement for which room can be found.

The drawing which is reproduced on Plate 23 shows Piccadilly as it might appear in the future. Lewis's store and the Williams Deacons Bank form the background, with the massive form of the commercial centre rising behind.

The amusement centre has been allotted a much larger site than can be made immediately available; the project should therefore be so designed that it can be realised in progressive stages.

PICCADILLY : 1939



PICCADILLY : THE PROJECTED “PEOPLE’S PLACE”



Drawing by P. D. Hepworth

TRINITY STATION AND BUS TERMINAL



Drawing by J. D. M. Harvey

THE FUTURE OF RINGWAY AIRPORT



Drawing by Cyril A. Farey

IS THIS PLAN for Manchester practicable? Technically it is, but its accomplishment depends on the readiness of the people of Manchester to accept its real cost, and of the Government to put the necessary powers and resources at the city's disposal.

In the long run good planning pays: it would not be good planning if it did not. In the conduct of business and everyday life, where the planner reaps the benefit of his own foresight or bears the cost of his own imprudence, this truism is self-evident enough, but several factors combine to make it less obvious in the case of civic development. In the first place, the benefits of good planning are not all measurable in terms of money, nor is it always apparent that they are due to good planning; they include better health, richer leisure and happier homes, as well as such savings in time, energy and materials as find reflection in our balance sheets, public and private, national and local. Secondly, even the direct and financially assessable benefits of good planning are widely diffused, whereas the costs fall almost entirely on the planning authority. Thirdly, the law has hitherto permitted or encouraged only a piecemeal, hand-to-mouth sort of planning that yields limited benefits and magnifies the burden of both real and paper costs.

FURTHER LEGISLATION

This is not the place to discuss the principles on which the further reform of our planning laws should be based or to explain the deficiencies in the operative Acts. To do so would require a book in itself. It would be wrong, however, to leave the reader with the impression that this Plan, or any substantial part of it, can be put into effect without speedy action on the part of the Government to remedy the more obvious defects in the present law relating to land and planning.

At the outset it must be assumed as a matter of course that the problem of compensation and betterment will be disposed of without further delay, whether in the manner outlined in the White Paper on control of land use or on the lines of the Uthwatt Report.

At this point it should again be emphasised that Manchester will in any case be largely redeveloped, with or without a plan, in the course of the next 50 years. Provided the pace of redevelopment is not unduly forced, therefore, the only real cost to be set against the advantages of planned redevelopment is that which is entailed in the premature demolition of usable buildings, or in holding back the redevelopment of adjoining land until such buildings have lived out their useful life.

How, then, can we arrange for a continuous and systematic renewal of the city's fabric in accordance with a more efficient pattern without unduly curtailing the useful life of any existing structure? Something can be done in this direction by planning our redevelopment programme in progressive stages, as has been suggested for the Miles

Plattin neighbourhood. As far as urgent social needs allow, we should tackle one section of each redevelopment area at each succeeding stage, beginning with the most decrepit sections and leaving the most modern until they have grown ripe for replacement. But however careful we may be in selecting the sections to be included in each stage of redevelopment, and in timing the successive stages, our pains will be in vain if in the meantime new buildings which do not conform with the detailed planning proposals have been erected in place of the old.

Obviously, means must be found to prevent labour and materials from being wasted either by the rebuilding of property scheduled for early clearance or by the renovation of existing structures to last a longer period than is contemplated in the redevelopment programme. This need might be met without unfairness either to the corporation or to the property-owner if the law provided that, where the corporation has given formal notice of its intention to redevelop a specified section at a specified date, compensation should be payable only in respect of the buildings already standing and the leases already current in that section, and should be assessed on their remaining value (if any) at the time of redevelopment, without regard for any extensions or alterations (other than essential maintenance work) carried out since the notice was given, or for any increased trade arising therefrom, or for the unexpired term of any lease arranged or renewed during the intervening period. If legislation to this effect were passed the property-owners concerned would know where they stood; they would arrange their leases accordingly and see to it that their new buildings conformed with the detailed planning scheme for the section, or erect them on alternative—and often better—sites made available for the purpose elsewhere. Thus both the real cost to the community and the financial cost to the corporation would be minimised without serious inconvenience to owners or tenants.

LAND VALUES

As far as buildings are concerned, then, the key to the avoidance of needless waste and prohibitive compensation costs is the combination of a stage-redevelopment programme with the proposed limitation of liability where due notice of intention to redevelop has been given. But inflated land costs will still remain as a major obstacle to the well-planned redevelopment of the central and inner districts unless further legislation is enacted. At present the price which must be paid for "pink" areas (i.e., land occupied solely by dwellings condemned under a slum-clearance order) is mainly governed by their hypothetical value if redeveloped at a legally permissible density more than twice as high (in the case of houses) as that which we have ascertained to be the maximum that is compatible with decent living conditions. The extravagant figures that result would be drastically reduced if values were based on a realistic limit imposed by Parliament on the net

densities to be permitted in post-war housing redevelopment.

In commercial and industrial areas land values should be governed by codes designed to secure proper daylighting breaks between buildings and adequate space for car parking and for loading and unloading. These standards will automatically ensure that each building has a setting which makes a worthy architectural treatment possible—and enjoyable. It will also be necessary, however, to exercise architectural control over elevations, regarded not in isolation but as parts of a composite picture. It may here be remarked that comparatively little has been said in this book about the architectural appearance of the future Manchester. If this is so, it is not because such considerations have not been taken into account at every stage in preparing the detailed plans, but rather because space is limited and priority had to be given to the physical, economic and demographic groundwork on which all sound planning must be based. Far too little attention has hitherto been paid to these fundamental factors.

LOCAL GOVERNMENT

The necessity to rehouse a large overspill population outside our present boundaries within a few years raises another pressing issue—that of local government reform.

We in Manchester know from practical experience what such a dispersal entails. The lessons of our Wythenshawe experiment are fresh in our minds. We know what it is to struggle against the bitter frustrations that arise when authority is divided between the dispersing and receiving areas. We have learned how intricate and delicate are the negotiations by which the parallel dispersal of industry must be accomplished. We are aware that, when at last Wythenshawe was brought within our boundaries, we were able to achieve something which (though still far from satisfying to ourselves) has earned for Manchester world-wide acclaim. Elsewhere, however, this hard-won experience has yet to be appreciated.

The task demands the most comprehensive and detailed—yet flexible—organisation at both ends and a precise but elastic timing of each stage in the creation of the new town and the loosening-out of the old. It is hardly conceivable that such an exacting task could be carried out smoothly, and without serious hardship to the people whose lives it must transform, if the authority responsible for redevelopment and dispersal had no direct control over the scale, pace, quality or character of the new development in the satellite town.

It is, of course, arguable that the city's boundaries should not be extended in such a way as to embrace the large area of agricultural land that is bound to lie between it and its future satellite; but that would be quite unnecessary. Manchester's administrative area need not be continuous; there is no valid reason why it should not include a separate colony at a distance from its metropolitan boundary. Nor, incidentally, is there any reason why the new township, when fully developed, should not become an independent borough.

However, these are only makeshift expedients to meet an immediate and imperative need. In the long term the comprehensive replanning of Manchester and its surrounding conurbation can be effectively carried out only by an overall authority charged with financial responsibility for all the more specialised services common to an area large enough to contain the whole of the ring-road system, the green belt and any satellite communities that may be required beyond it. At the same time, however, the objectives of any long-term plan must include a resuscitation of the civic and social consciousness of our people, and this implies a more direct and intimate contact between the individual citizen and the body that looks after local affairs. The only complete solution would appear to be the creation of an elective council, representing the districts of Manchester and Salford, their satellite communities and the neighbouring towns, to undertake such functions as are by nature regional in scope and character, leaving all those services and branches of services which are essentially of local concern to be administered by the smaller existing local authorities outside the two cities and by new district councils within them.

THE PROSPECT

A final word must now be added about the other conditions on which the success of this vast enterprise depends. We have ascertained that our Plan is technically feasible; we have indicated how its execution can be made administratively possible; we have assumed that the world of tomorrow will be a saner world in which human endeavour is predominantly directed to constructive ends. But all this is not enough. To bring such a grand adventure to fulfilment calls also for sterling qualities in the community that undertakes it. It demands a staunch resolution, a sustained drive, a calculated willingness to make some temporary sacrifice of ease and comfort for the greater good of our sons and daughters and the children we see playing in the streets. Above all, it demands a firm determination to get down to a job of sheer hard work. Not until our surveyors and valuers have completed an exhaustive investigation can the details of the redevelopment programme be confidently settled; not until the skill of our ablest engineers and the creative imagination of our most talented architects have been brought to bear can the opportunities it offers be fully appreciated. Only a building industry that is efficiently managed and prepared to make full use of modern mechanised techniques can achieve the productivity that is required to rebuild Britain without monopolising too large a share of our labour resources; and only a labour force that has faith in the social value of what it builds will put forth the necessary measure of energy and skill.

We are entering upon a new age: it is for us to choose whether it shall be an age of self-indulgent drift along the pre-war road towards depopulation, economic decline, cultural apathy and social dissolution, or whether we shall make it a nobler, braver age in which the human race will be master of its fate.

